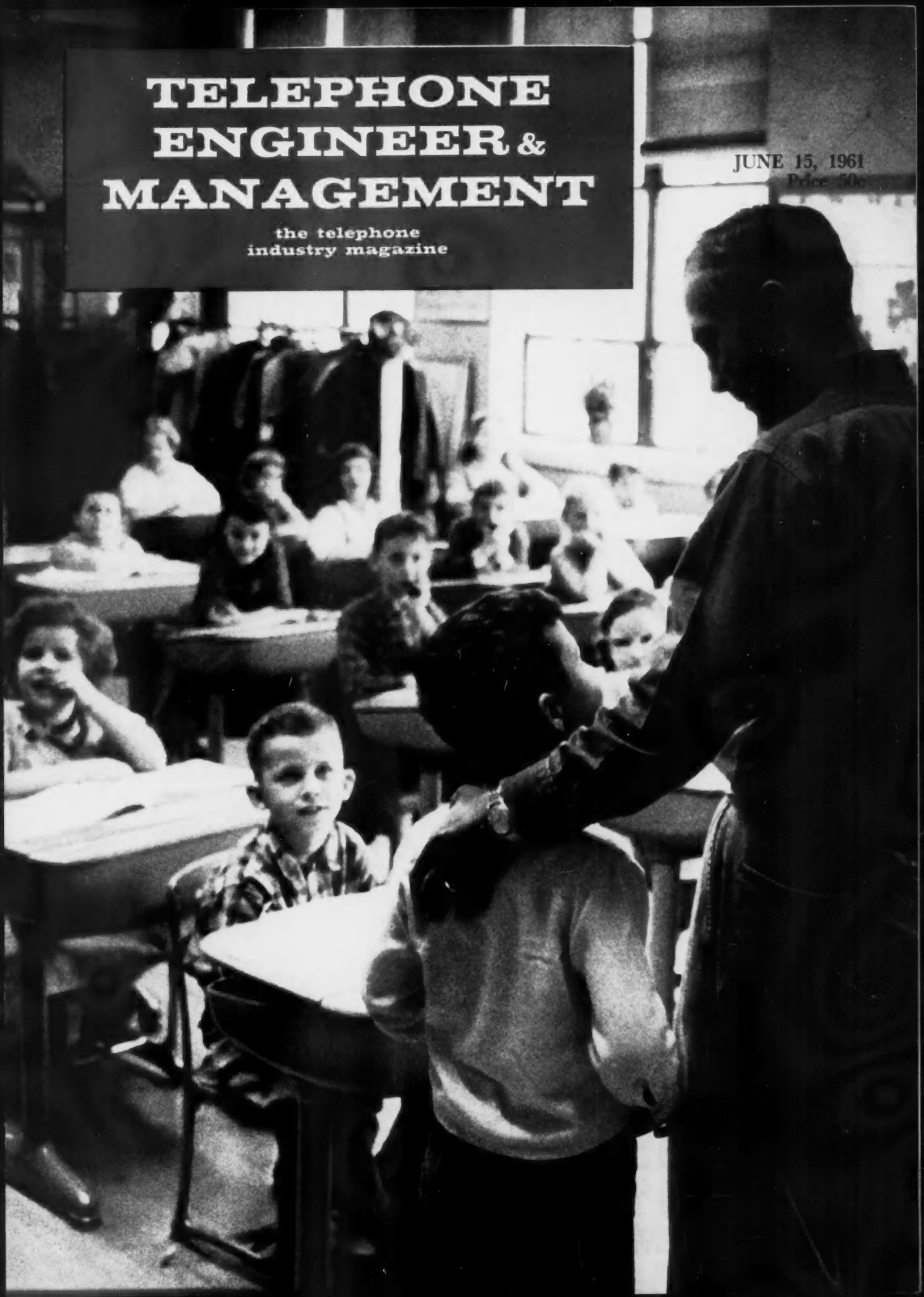
TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

JUNE 15, 1961
Price 50c



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TELEPHONE ENGINEER & MANAGEMENT

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THE TE&M FRONT COVER

We believe our front cover photograph showing a telephone man (Oney Lloyd, installer-repairman at Gallipolis, Ohio) and his son, Terry, facing the pupils in the second grade class at Washington Elementary school, Gallipolis, is a good example of the father-son relationship that will be enjoyed by thousands of telephone men the world over on June 18 when "Father's Day" rolls around. — (Ohio Bell Photo.)

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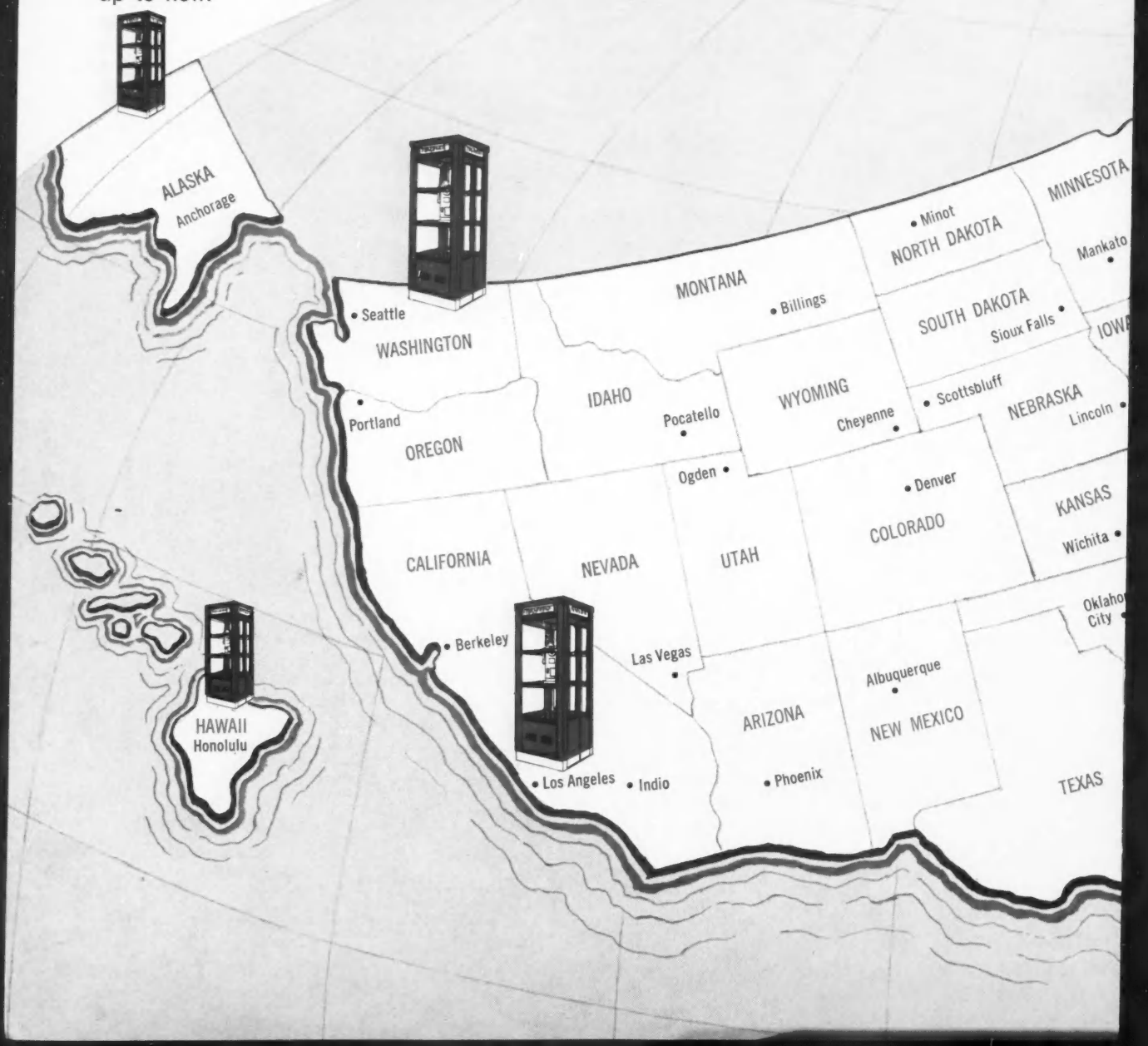
POSTMASTER . . . Please send form 3579 to TELEPHONE ENGINEER & MANAGEMENT, 7720 N. Sheridan Rd., Chicago 26, Ill.

WHAT IT TAKES TO MAKE U.S.I.T.A. COMMUNICATIONS COMPLETELY EFFECTIVE

The contrived heading of this advertisement aims to epitomize the stake and stature of the INDEPENDENT TELEPHONE COMPANY in the phenomenal expansion of our nation's communications system.

There is no way of knowing how fast or how far the industry would have progressed without the UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION (USITA). The inescapable fact is that the USITA has contributed mightily to the great achievements that have been realized up to now.



With its membership made up of Independent telephone companies in all 50 states, the USITA has been a co-ordinating force of unsurpassed effectiveness. It has given inspired unity to Independent telephony which is dedicated to the furtherance of the American private enterprise system of communications.

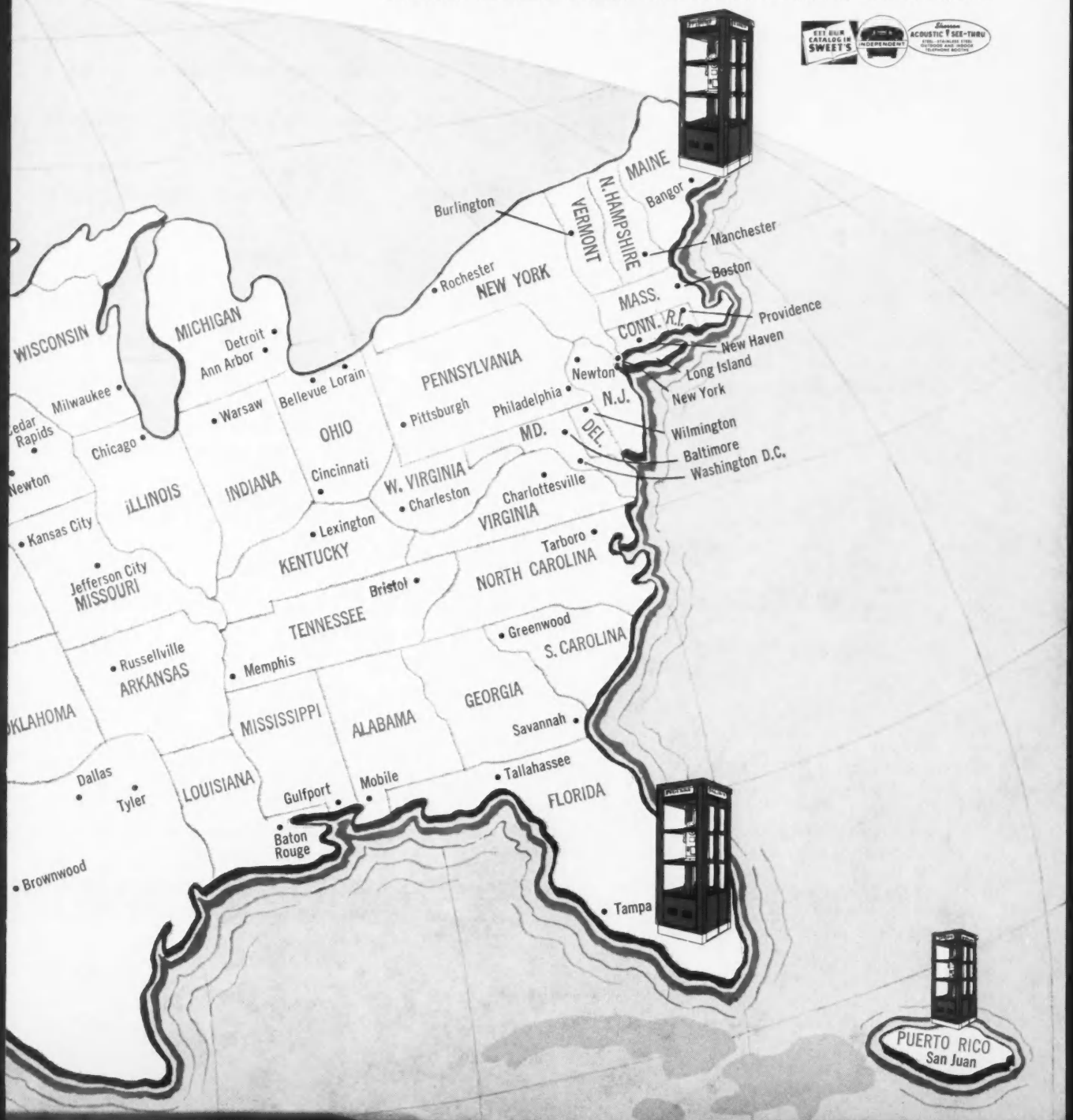
As a consequence, the Independent telephone company is constantly aware of the need to serve; to improve that service, whenever improvements are validated and wherever they may be applied.

This takes in the Independent that serves a concentration of subscribers within a limited area, as well as the Independent whose service includes hundreds of thousands of stations.

It is this universal awareness among Independents that accounts for the acceptance of Sherron steel telephone booths among the facilities that qualify as communications improvements.

(This advertisement is not to be construed as an endorsement of any product by the United States Independent Telephone Association.)

SHERRON METALLIC CORPORATION 1201 FLUSHING AVENUE, BROOKLYN 37, N. Y.



You Have to Spend

MANY telephone companies have the same problem. They can see added revenue and more satisfied customers—if only they could find financing to make the capital improvements necessary to take advantage of these profit opportunities.

LEICH'S FINANCE PLAN FOR INDEPENDENT TELEPHONE COMPANIES

The Leich Finance Plan was created solely for Independent telephone companies. It is the most streamlined, economical way to borrow money for *all* capital improvements. It was designed particularly to fit the unusual requirements of telephone companies.

WHAT MAY YOU USE THE MONEY FOR...

Many loan plans are designed primarily for dial conversion. The Leich Finance plan covers these. But it is not limited to either dial conversions or additions. PABX installations, telephones, supplies, even buildings and contract and local labor costs may be included.

NOTE: *WHY DO WE DO THIS...* Leich is not in the finance business. We've manufactured and sold equipment to the Independent telephone industry for 50 years. Now we find many telephone companies that might wish to purchase new equipment or convert to dial need help. That's why we offer this streamlined and economical loan plan. Write or call if you would like more information.

LEICH GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

Money to Make Money!

HOW DO YOU QUALIFY?

In most cases, your Leich salesman can help you determine how you can qualify. Naturally, a certain equity is needed by the telephone company. Here again, your Leich salesman can help advise you on requirements. If necessary, he can call on experts who have helped many telephone companies obtain loans.

No reasonably operated telephone company should have a problem in qualifying for a Leich loan. If you are planning a dial conversion or some other capital improvements that Leich can help you with, we'll be glad to tell you all about this finance plan. If a Leich salesman does not call on you regularly, write to Leich Sales in Chicago.

THREE TYPES OF LOAN PLANS

Long Term: This covers major expansion such as dial conversions, toll and plant additions. During the construction period we accept a series of notes, with interest rates in effect at the time depending upon the amount and term of financing. Six to 12 months after the construction is completed, we replace the demand notes with a long-term note for the aggregate amount of the demand notes. At this time, when the additional plant is starting to produce revenue, the telephone company starts making principal and interest payments. In other words, the telephone company doesn't pay for the use of money until it needs it and uses it.

Interim: This type is also incorporated in our Long Term financing, but is available separately. Interim financing is available for companies who have made or are making arrangements for long term financing, but do not have arrangements made to have funds available during the period of construction.

Installment: This is for loans that are to be paid up in five years or less. Say—the telephone company needs 100 telephones, or an addition to their cable plant, or two PABX switchboards. This type of loan can be repaid in monthly installments while the new facilities are beginning to pay their way.

ADVANTAGES OF THE LEICH PLAN

No mortgage is required, thus saving on legal and recording fees.

There is no commitment or loan fee.

There is no prepayment premium. No penalty charges are required if the telephone company wishes to pay up its loan before its due date.

Standard, current interest rates are the one and only charge.

Preliminary engineering assistance to help the telephone company determine its material and transmission requirements is available at no charge.

LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS
PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL. EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO
SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA • 2915 W. MOORE ST., RICHMOND, VA.
manufacturers of telephones, switchboards and related apparatus since 1907

a big plus when you buy

everything you need to...

BOOST

with OUTSTANDING

now! 3 more ITT Kellogg

IN OCTOBER '60...
THE FIRST 2 SELL-A-PHONE
PROMOTIONS
WERE INTRODUCED

HOME EXTENSIONS/COLOR
AND
BUSINESS KEY PHONES

MILLIONS OF PROMOTIONAL
PIECES HAVE BEEN USED
BY COMPANIES
FROM COAST-TO-COAST!

NEW!

Cinderella

Compact Fashion Phone

SELL-A-PHONE PROMOTION

All the materials to start orders rolling in . . . newspaper ad mats, bill inserts, wall and truck posters, radio scripts, news releases, display ideas folder, selling tips for your salesman, color photos for your installers and order counters.

Your local representative will be in soon with the complete story on all three of these programs. Look for him.

from Kellogg!

REVENUE PROMOTIONS

Sell-A-Phone promotions

NEW!

Code-a-phone®

Automatic Telephone Answering, Recording and Dictating Machine.

SELL-A-PHONE PROMOTION

Here's the program that sells them for you! Ad mats, mailers, radio scripts, to bring in the leads. Plus a demonstration idea that actually "sells" the unit right at the prospect's desk! . . . and, all the materials to follow-up calls and train your salesmen.

NEW!

Auto-COM

Mobile Telephone Service

SELL-A-PHONE PROMOTION

Here's everything you need to get started in the fast growing mobile telephone business: Mailers, product brochures, news releases, radio scripts. Plus all the materials for setting up a local "Auto Dealer Sales Plan" to sell *for* you!

ITT

KELLOGG

A Division of
International Telephone & Telegraph Corporation
6650 South Cicero Avenue, Chicago 38, Illinois

Telephone Department
412 South Fillmore, Corinth, Mississippi

Regional Offices and Warehouses:
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GEORGIA: 1554 Southland Circle, N.W., Atlanta 18, Ga., SYcamore 4-2441.
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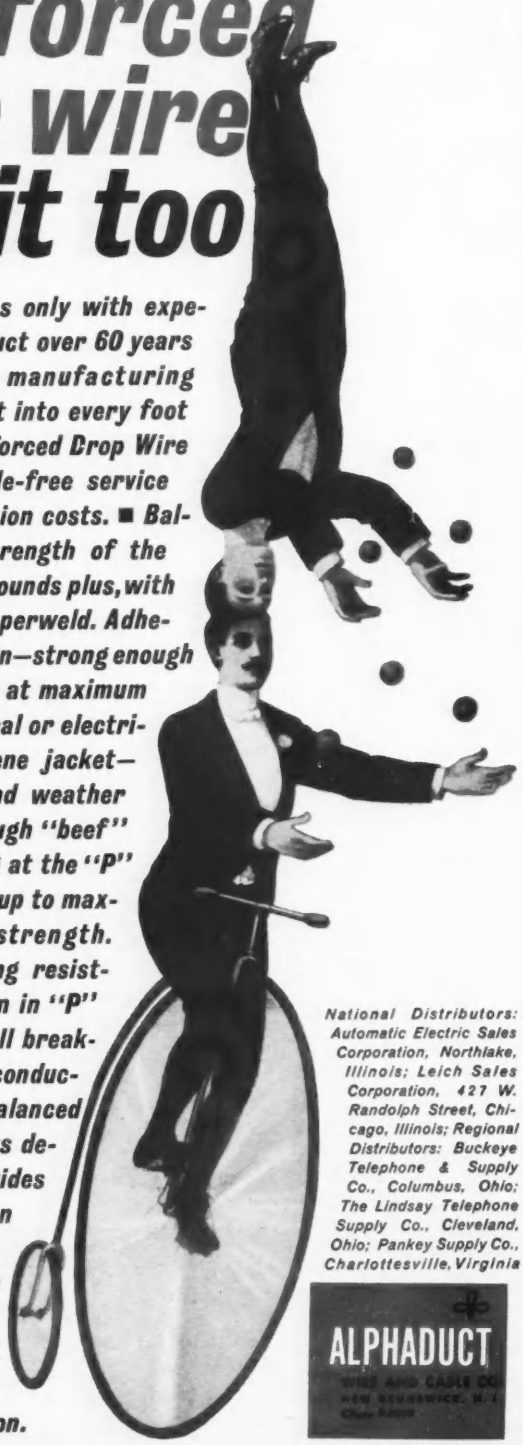
KANSAS: 7th and Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
NEW YORK: 327 North West Street, Syracuse, N.Y., HArrison 2-9251.
NEW YORK CITY: 22 Thames Street, New York 6, BOwling Green 9-3800
TEXAS: 1359 Motor St., Dallas 7, Texas, Riverside 7-5191.

ITT Kellogg products available in Canada
through Standard Telephones & Cables Mfg. Co., Ltd.
9600 St. Lawrence Boulevard, Montreal 12, P.Q., Canada

true balance... alphaduct reinforced drop wire has it too

True balance comes only with experience...at Alphaduct over 60 years of technical and manufacturing know-how are built into every foot of Alphaduct Reinforced Drop Wire for greater trouble-free service and lower installation costs. ■ Balanced breaking strength of the conductors—400 pounds plus, with #18 AWG, 30% copperweld. Adhesion of the insulation—strong enough to prevent slipping at maximum load without physical or electrical failure. Neoprene jacket—tough, abrasion and weather resistant with enough "beef" to prevent buckling at the "P" clamps all the way up to maximum conductor strength. Compression cutting resistance—no breakdown in "P" clamps up to overall breaking strength of the conductors. This sturdy balanced construction resists deformation and provides greater protection against lightning failures. ■ Insist on Alphaduct Reinforced Drop Wire... and remember, it's dated for comparison.



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ALPHADUCT
WIRE AND CABLE CO.
NEW BRUNSWICK, N. J.

coming CONVENTIONS

NEW YORK Tel. Assoc., Scaroon Manor, Schroon Lake, N. Y., June 19-21.

CALIFORNIA Tel. Assoc., Hawaiian Village, Honolulu, Hawaii, June 26-30.

ALASKA Tel. Assoc., Hotel Not Announced, Palmer, Alaska, Aug. 21-23.

ROCKY MT. Tel. Assoc., Owyhee Hotel, Boise, Sept. 13-15.

GEORGIA Tel. Assoc., Corsair Motel, Jekyll Island, Ga., Sept. 14-15.

MICHIGAN Tel. Assoc., Pantlind Hotel, Grand Rapids, Mich., Sept. 19-21.

NEVADA Tel. Assoc., Stockmens Hotel, Elko, Nevada, Sept. 19-21.

NEW ENGLAND Tel. Assoc., Poland Springs Hotel, Poland Springs, Maine, Sept. 24-27.

WEST VA. Tel. Assoc., Oglebay Park Hotel, Wheeling, W. Va., Sept. 26-27.

USITA CONVENTION, Conrad Hilton Hotel, Chicago, Ill., Oct. 8-11.

SOUTH CAROLINA Tel. Assoc., Clemson House, Clemson, S. C., Oct. 23-24.

VIRGINIA Tel. Assoc., Roanoke Hotel, Roanoke, Va., Oct. 26-27.

OKLAHOMA Tel. Assoc. Skirvin Hotel, Oklahoma City, Okla., Nov. 8-9.

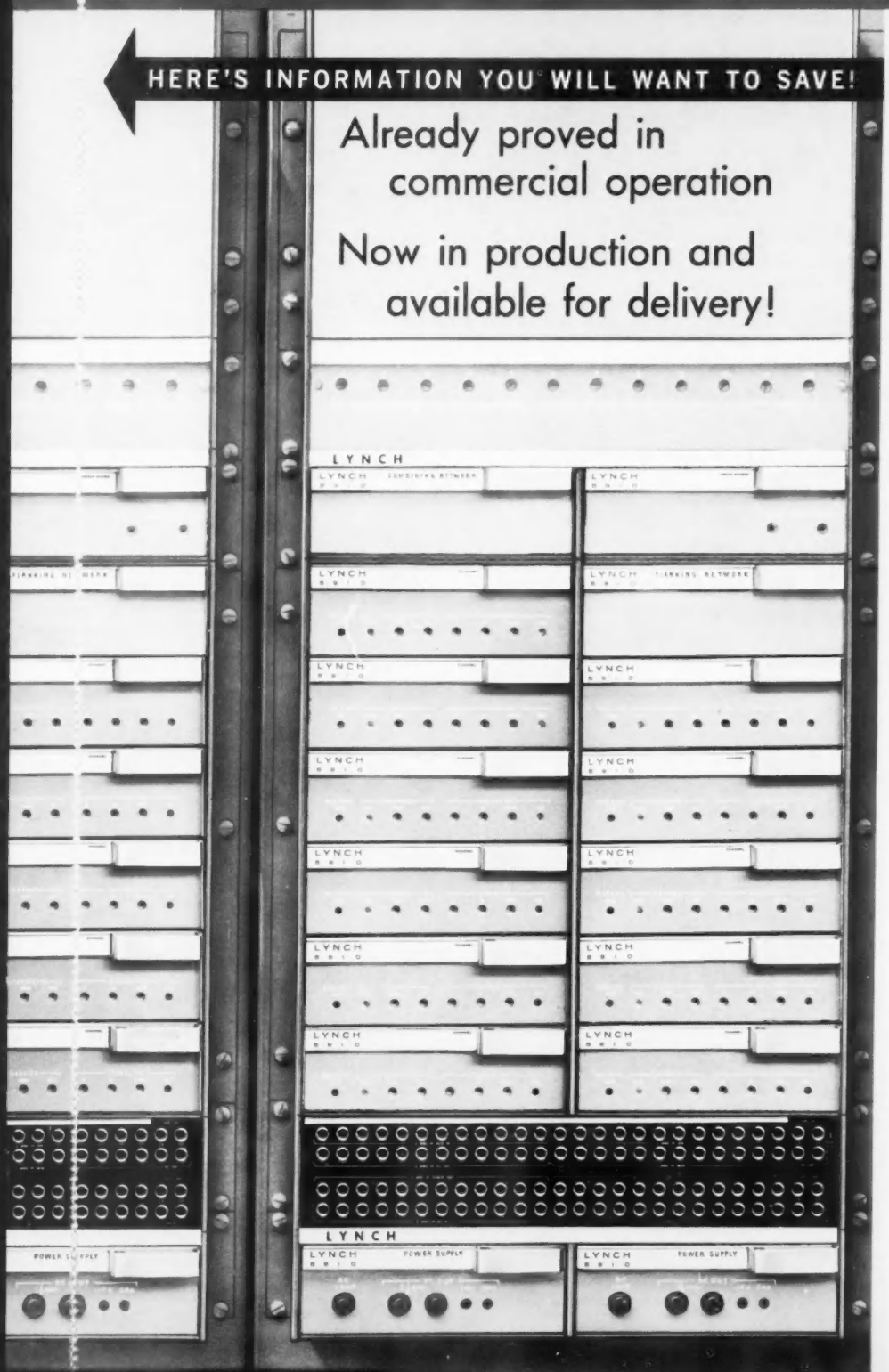
ALABAMA-MISSISSIPPI Tel. Assoc., Thomas Jefferson Hotel, Birmingham, Ala., Nov. 11-13.

FLORIDA Tel. Assoc., The Carillon Hotel, Miami Beach, Fla., Nov. 26-28.

NORTH CAROLINA Tel Assoc., Carolina Hotel, Pinehurst, N. C., Dec. 4-5.

WISCONSIN Tel. Assoc., Hotel Not Announced, Milwaukee, Wisc., May 8-9, 1962.

Lynch® MICROWAVE COMMUNICATIONS



HERE'S INFORMATION YOU WILL WANT TO SAVE!

Already proved in commercial operation

Now in production and available for delivery!

SOLID STATE MULTIPLEXING SYSTEM

Low-cost dependability in today's most versatile microwave communications system!

Economical initial purchase of 1 to 12 channels, easy expansion to 600 channels.

Lower initial, expansion and maintenance costs.

Greater flexibility, with elimination of the need for common equipment.

Filter options for easy drop and reinsert configurations.

New level of reliability . . . up to 120 channels with no equipment common to more than 12 channels, except for the power supply.

All this—and it's available TODAY.

Turn the page for full details

B910 SOLID STATE MULTIPLEXING SYSTEM

Lynch

LOW-COST DEPENDABILITY

The Lynch B910 is a fully transistorized system offering exceptional operating flexibility and economy for microwave multiplexing applications, and it is also expandable to cable and wire-line operations on a carrier frequency basis to complete a communications system. Spectrum utilization conforms to CCITT recommendations. Lynch also has available an alternate modulation plan to facilitate economical and simple "breakout" of groups of 12 or less voice channels at any repeater or junction station along the line. System arrangements are available which will connect into Western Electric or other carriers of a similar type operating within a corresponding frequency range.

The Lynch B910 system does not penalize the small user . . . it is economically practical for small and large users alike.

The individual channels, occupying a four kilocycle segment, utilize single-sideband suppressed carrier transmission for maximum utilization of the microwave baseband and are individually stackable to the group maximum of 12 channels. Beyond the basic group of 12 channels, the system may be expanded progressively by group modulation methods, to 600 or more channels. It is not necessary to add groups in ascending frequency order, but they may be added at the frequencies required by the microwave system channeling plan according to the individual application.

Each channel of the B910 is completely self-contained in one horizontal drawer, with the exception of the power supply, terminating set and jack field, and includes an individual crystal controlled oscillator for modulation purposes and an individual oscillator for signaling. E & M signaling is standard for all units with all standard telephone signaling arrangements (ringdown, loop, subscriber, etc.) available as optional applique panels. Automatic standby power supply is also available.

An entirely new B910 filter design allows the basic 12 channel system to be translated directly to the 60 to 108 kc spectrum in one modulation step offering a substantial savings in the cost of intermediate group equipment, extra wiring, assembly and testing. In addition, a unique way of deriving the first supergroup (60 to 300 kc) makes it possible to place 120 channels on the microwave baseband without the use of supergroup equipment. No active equipment (except power supply) then affects more than 12 channels.

The Lynch B910 was designed and built specifically for microwave multiplexing application to provide a maximum number of channels on a minimum cost-per-channel basis. Particular emphasis has been given to equipment design with regards to maximum reliability, coordination, operating flexibility and ease of maintenance.

the essential facts . . .

GENERAL

TRANSMISSION . Single-sideband, suppressed carrier.

CHANNELS . . . 1 to 600

CHANNEL SPACING . . . . 4 kcs

SIGNALING . . . E & M or no signaling, standard. All other standard signaling options available with converter panels. Standard 3825 cps on-off signaling. Channel failure indicated by permanent busy signal.

POWER . . . . . Battery or 117 VAC. Approx. 1.2 watts per channel terminal.

OPERATING TEMPERATURES . −20° C to +60° C (−4° F to +140° F)

NOISE (Maximum) . . . . Idle circuit 15 dba, loaded 30 dba.

RADIO BASEBAND CONNECTION

LEVELS . . . . . −30 dbm send and receive (approx.).

IMPEDANCE . . . 75 ohms balanced and unbalanced or other impedances optional.

VOICE FREQUENCY

FREQUENCY RESPONSE . . . . 300 to 3400 cps +1, −3 db.

IMPEDANCE . . . Four-wire, 600 ohms balanced. Two-wire, 600 or 900 ohms balanced with provisions for precision balanced network.

LEVELS . . . . . Four-wire, −16 dbm. in, +7 dbm out. Two-wire, 0 dbm send, receive +1 dbm maximum.

HARMONIC DISTORTION AT TEST TONE LEVEL 2% total maximum at 300 to 3400 cps.

LEVEL STABILITY ±1.5 db with seasonal line-ups.

Lynch

LYNCH COMMUNICATION SYSTEMS INC.

695 BRYANT ST. SAN FRANCISCO 7, CALIFORNIA • EXBROOK 7-1471. AREA CODE-415

Distributed by GraybaR

NEWSLETTER
TELEPHONE INDUSTRY

Prepared By The Editorial Staff of TELEPHONE ENGINEER and MANAGEMENT

ON THE 1st OF EACH MONTH ★ ON THE 15th OF EACH MONTH

Dear Sir: June 15, 1961

GSA ASKS CALIFORNIA COMMISSION TO RECONSIDER INTRASTATE SAGE RULING . . . The California Public Utilities Commission has been asked by the General Services Administration to reconsider its decision concluding that there is no basis for a finding that present intrastate rates of the Pacific Tel. & Tel. Co. for SAGE services are unjust or unreasonable.

GSA asked that the commission modify its ruling to require maintenance by Pacific of separate plant and operating accounts for the SAGE services; provide that rates established at this time are tentative; and provide for retroactive application of rates finally determined to be just and reasonable.

It said that the one-year test period provided by the commission will not afford, in the absence of special accounting procedures, additional basis for determination of Western Electric materials or installation charges, depreciation expense, or depreciation reserve.

NORTH CAROLINA COMMISSION TO RESUME INDUSTRY-WIDE INQUIRY AUG. 15 . . . The North Carolina Utilities Commission on Aug. 15 will resume its industry-wide inquiry into the difference between interstate and intrastate long distance rates for similar distances, it was announced last month. The commission earlier had decided to broaden the scope of its state-interstate toll rate disparities hearing.

At the sessions starting Aug. 15, the state commission will receive evidence on the standard separations used for separating intrastate and interstate operations, settlement contracts among telephone companies, and the reasonableness of the present uniform intrastate toll rates. The Southern Bell Tel. & Tel. Co. and 34 Independent companies are joint respondents in the hearing.

RATE APPEALS CHANGE MADE BY MAINE BILL . . . Governor Reed has signed into Maine law a legislative bill limiting slightly the role of the State Supreme Court in hearing appeals from State Public Utilities Commission decrees in utility rate cases. The new law will allow the court to order the commission to obtain additional evidence on certain points. However, it will remove the court's authority to receive and act on new or additional evidence on its own motion, except on issues of confiscation or constitutional right.

WITH THE STATE LEGISLATURES . . . A bill passed by the Ohio House of Representatives and sent to the State Senate would require utility companies to return to customers any charges which the State Public Utilities Commission and the courts find to be excessive. . . . A bill to set up a consumers' council in the State Justice Department to represent the public before state regulatory agencies has been introduced in the Pennsylvania legislature by Senator Harry S. Seyler of York. The council idea was originated in Pennsylvania by State Attorney General Anne X. Alpern. A similar proposal died in committee during the 1959 legislative session.

GAY NAMED CHIEF ENGINEER MID-CONTINENT TEL. CORP. . . . Harmon L. Gay, who for several years was chief outside plant engineer of The Western Reserve Tel. Co., Hudson, Ohio, has been appointed chief engineer of the Mid-Continent Tel.

Safety's Still First

By ROY SAVAGE

Roy Savage, director of supply sales, Automatic Electric Sales Corporation.

At numerous times throughout the year, the National Safety Council increases its efforts to make each of us more aware of the importance of safety. Highway safety is usually given the greatest emphasis, but safety at home and on the job are stressed also. Do these campaigns really make us more aware? And if they do, does increased awareness cut down on accidents? Both are moot questions currently under discussion by psychologists and safety experts.

The safety people say that while the total number of accidents continues to climb, the accident rate has been reduced. The psychologists dispute this statistical explanation and offer one of their own. Many people, they say, are incapable of facing unpleasant possibilities, and will tune their minds out when presented with the subject of accidents, possible disfiguration or death.

To support their view, the psychologists point to the experience of one of our leading automobile manufacturers. A few years back, this company decided to promote that season's line of cars as the safest autos people could drive. They began an advertising campaign which promoted seat belts and safety glass as standard equipment. Their sales dropped drastically, and they quickly switched their advertising approach. The psychologists explain that for many people, the company's cars had become symbols of an unpleasant possibility.

INDUSTRY'S RECORD GOOD

But what of the very good record that industry has made in this area? The businessman does not run from this problem. He accepts the challenge and acts to solve it. He uses the suggestions of the NSC concerning safe practices and safety devices. He wages a constant struggle against accidents and carelessness on the job. He inspires the same attitude in his men. The result is a greatly improved safety record.

The same businessman who may refuse to listen to warnings that affect him or his family personally, may very well heed the same warnings when they affect his company or his employees. This, according to the psychologists, is a difference between personal and business or social consequences. The businessman can see the merits of safety campaigns objectively, and he acts unemotionally to provide safety for his people and his plant.

Another factor in the businessman's favor is his desire to do the job the right way. If his employees share this desire, their safety record is bound to improve, because the correct way is always the safe way.

We don't know who has the right answer. Both views have some merit and the truth probably lies in a combination of the two schools of thought. Although the psychological answer may be correct, we feel that constant safety reminders must have some positive affect on people willing to heed them, and safety campaigns and slogans should be encouraged.

One thing we do know. Business has made the best safety record, and utility companies, especially telephone companies, have been leaders in the effort. This is due, not only to the awareness of the telephone man, but his use of safe practices and safety devices. Still more encouraging are the many new products being developed to improve safety standards still further.

IMPROVED DEVICES

The latest safety ladder for power and telephone companies is made of wood and covered with a thick coating of fibre glass. These two materials combine high resistance to electrical charges, durability and long life.

Highway and roadside construction is an area that is mushrooming with improved safety products. The guiding of traffic around men at work is made more feasible by the use of flashing lights, flags, traffic cones and flares. These warning signals give the motorist ample time to adjust to the unusual road condition. Used properly, these devices can move traffic smoothly and safely with a minimum of inconvenience to motorists and work crews.

Proper placement of these devices is essential to their success. For this reason we recommend two NSC pamphlets* on the subject. These pamphlets show how safety can make all our jobs better jobs. They should be of great interest to anyone who wants to improve the safety standards of his company and his community.

*Copies available by writing Mr. Savage at Automatic Electric Sales Corp., Northlake, Illinois

COLORFUL TRAFFIC CONES for better traffic control. Help guide flow of traffic smoothly. Protect motorists and work crews. Vivid yellow and red colors.

warehouses:

Northlake, Illinois — Fillmore 5-7111

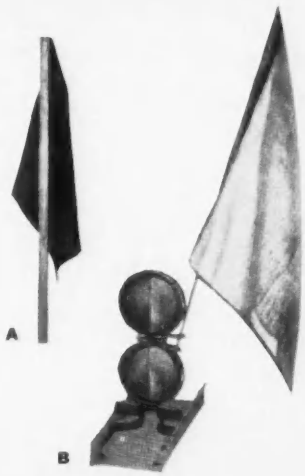
2915 Moore St., Richmond 21, Va. — ELgin 6-9280

PROTECT YOUR MEN AGAINST ACCIDENTS

AE has everything you need for safety first

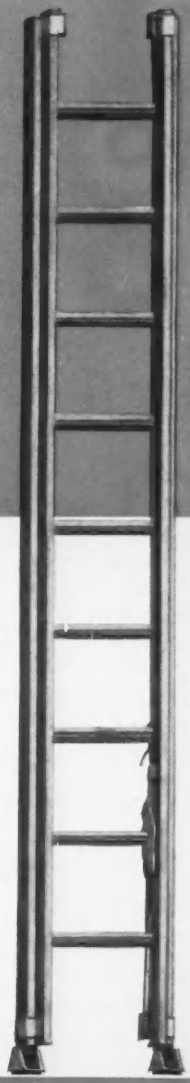
Here are just a few of the improved safety devices that keep your men safe while they work. There are others, of course... in stock... in our warehouses. All are designed for maximum protection. When safety counts, contact your AE representative.

FLASHING LIGHTS for use with barricades, vehicles. Light is detachable for use with tripod for heights up to 8 feet. Compact, lightweight unit flashes clear red beam. Batteries last up to 300 hours.



A. DANGER FLAGS. AE stocks a complete line of danger flags, including the new reflector-type nylon flag. Any flag for any use—self-standing, pole-mounting or on barricades and vehicles. AE's got 'em all.

B. VARI-FLARE REFLECTORS with Stimsonite lenses. Reflect 24-candle power over ½ mile in two directions. Four times brighter than average tail light. Flags are for daytime use. Base is stable even in high winds.



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(Concluded from page 11)

Corp. with headquarters at Elyria, Ohio, it was announced last month by Weldon W. Case, president. Gay was succeeded at Hudson by John W. Dailey, a former Ohio Bell engineer, who following retirement joined The Western Reserve Tel. Co.

The Mid-Continent Tel. Corp. was recently organized as a holding company, taking over several companies in the Independent field. In his new connection Gay will supervise the engineering work for the various companies.

FCC ENDORSES SATELLITE OWNERSHIP BY INTERNATIONAL CARRIERS . . . The FCC last month endorsed the principle that a commercial communications satellite system be owned jointly by international common carriers. "Some form of joint venture by the international communications carriers only is clearly indicated as best serving the public interest," the FCC concluded after its inquiry into the problems of establishing commercial space communications.

In answer to questions from the press, AT&T commented, "We feel that the commission's proposal is sound and will contribute significantly to U. S. leadership in the use of space for peaceful purposes. It puts the responsibility for these additional communications facilities where it would be — with the common carriers responsible to the public for service.

"Under the Communications Act, the international carriers are obligated to furnish adequate, efficient service at reasonable charges under public regulation. We agree with the commission that this obligation can best be discharged by allowing those carriers to maintain, as far as possible, direct control over and responsibility for the facilities used in this service.

"Under the commission's plan, all U. S. international common carriers will have access to the satellite communications system as well as an opportunity to participate in its ownership and use, under terms and conditions subject to the commission's approval."

On May 1, AT&T proposed that international communications common carriers in this country and abroad place "microwave towers in the sky" in the form of satellite systems that would be jointly owned and operated. The company emphasized that in neither purpose nor effect would our proposal lessen competition, restrain commerce, or create unlawful monopoly in international communications.

Under AT&T's proposal the "satellite facilities would be equally available to all duly licensed carriers through either ownership participation based on usage or by lease participation, as they elect."

TRANSMISSION GROUP ISSUES NEW PUBLICATION . . . The Joint Transmission & Communication Improvement Committee of North Carolina made up of members from the North Carolina Independent Telephone Association and The Southern Bell Tel. & Tel. Co. recently issued the first issue of "Condenser." According to W. L. Sampson, chairman of the NCITA-T&CI Committee, the committee hopes that through the publication Independent telephone companies will be made more aware of the problems now existing in telephone plant which impair transmission and informed of some of the remedies for these problems. The committee also plans to provide technical literature which will aid the companies in the future design of telephone plant to "build out" transmission troubles in the installation of new outside plant and equipment. To obtain a copy of the "Condenser," write W. L. Sampson, General Tel. Co. of the Southeast, P. O. Box 1412, Durham, N. C.

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Thousands of leading American companies keep their investment at a minimum with a 'Jeep' fleet. Great versatility and low initial cost give you the most versatile vehicle you can possibly get for your money! Traditionally rugged 'Jeep' construction keeps maintenance costs low and the resale value high. Get in touch with us today for complete 'Jeep' VEHICLES® information! **Write to: Robert J. Kreusser, Fleet Sales Manager, Willys Motors, Inc., Toledo 1, Ohio.**

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INDUSTRY OBSERVATIONS

By L. A. GRITTEN

D. D. T. Or Refuge By Flight?

THE pestilent impertinence of many telephone salesmen brings the inevitable reaction: "Non-list" applications are increasing rapidly. It costs less to print a subscriber's name in a directory than to omit it; and non-lists add to the Information Operator load. So some companies have already filed extra rates for those who decline to be listed in the directory, and many other companies are "thinking about it."

This is a thoroughly bad trend. There will always be a few people who, properly and reasonably, must demand telephone anonymity. There will always be a place for a certain amount of unsolicited sales contacts by telephone, if only for telephone company or governmental purposes. But obviously a continuing rapid increase in non-lists is inimical to the ideal of universal telephone communication.

Non-lists, free or paid for, are not the proper answer to the telephone salesman menace. Our customers should not be compelled by sales pests to pay their telephone company for the "privilege" of denying themselves the directory service they are entitled to.

The abuses of door-to-door salesmanship in cities are controlled to a great extent by civic laws and licensing fees. Similarly, something of the sort should be imposed everywhere in regard to telephone selling. Laws are enforced against the use of foul language and gambling promotion by telephone. Their scope should be enlarged to include unregistered and unlicensed selling — and those responsible for the enforcement of such laws must be alert to protect the telephone subscriber. This, of course, is easier to say than to bring into effect; but, whatever it may involve, it is the only approach that offers hope of a sensible solution.

The right answer to a pest is its elimination, not refuge by flight.

The Map You Must Not Miss

FROM the cartography of Claudius Ptolemy, eighteen centuries ago, to the amazing "*Radar Terrain Profiling*" described by Captain W. C. Eddy (TE&M 5/1/61), every man with a spark of imagination has been fascinated by maps and the romance of map-making.

We are grateful to Pacific Telephone Northwest for reproducing, in a newspaper advertisement, one of the zaniest and cleverest maps ever published. It is called: "Composite of the New Yorkers' ideas concerning the United States." Ten times the space we are allotted wouldn't suffice to describe it. However, the Pacific Telephone Northwest will send you a copy on request — if the New York Chamber of Commerce hasn't clapped an injunction on them.

You are invited . . . to tell our authors about problems on which you'd like to have an opinion.

While we don't claim to have all the answers, we'll welcome the opportunity to discuss as many as possible in TE&M's regular departmental columns.

Electronic Anticipations

THE tentacles of telephony's participation in human affairs now reach far beyond the limits of speech transmission. Standard Telephones and Cables, Ltd., a British I. T. & T. associate, is installing an electronic airline seat reservation system for British Overseas Airways Corporation. Sales agents throughout Europe will be able to learn instantaneously what seats are available on any flight, B.O.A.C. or otherwise, for twenty weeks in advance.

Some day, we hope, this service may be extended to warn prospective

"CHARLIE," by Jim Counts

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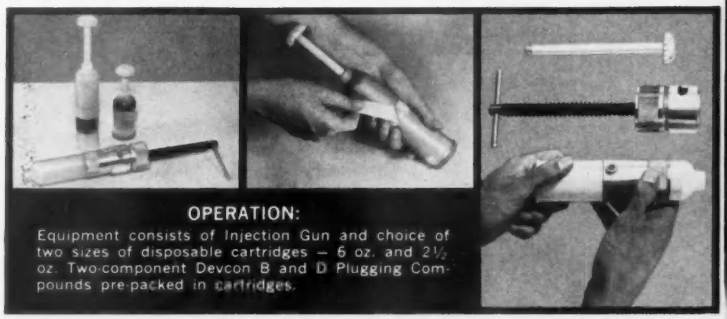
Save time in mixing epoxy resin and activator. Eliminate any cleaning of gun. B COMPOUND is recommended for plastic insulated cable while the D COMPOUND is applicable for paper insulated cable. Both B and D resins are available in 6 and 2½ ounce cartridges. The LD-755 Gun has a lifetime warranty.



OPERATION:
Equipment consists of Injection Gun and choice of two sizes of disposable cartridges — 6 oz. and 2½ oz. Two-component Devcon B and D Plugging Compounds pre-packed in cartridges.

1. Remove tape clinch band from cartridge.
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4. Attach fitting to cable and eject resin.
5. Remove cartridge from gun and discard.

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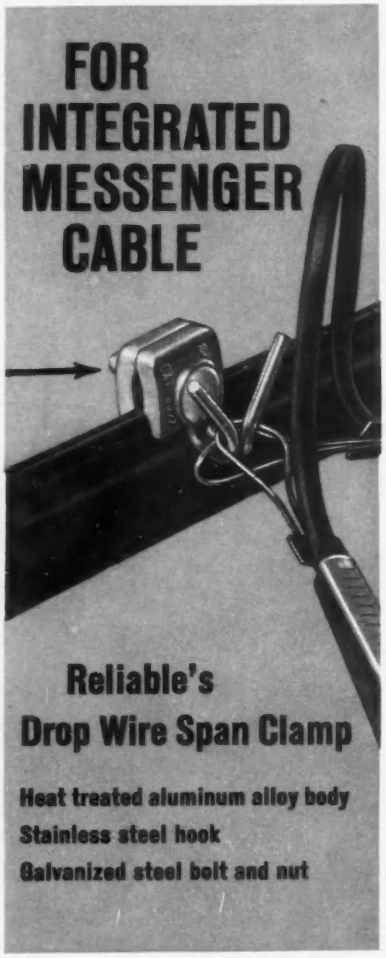

The No. 5577 Drop Wire Span Clamp is engineered for all Integrated Messenger Cables. A specially designed groove in the clamp protects the polyethylene web while providing a secure grip over the messenger jacket. It accepts 1 to 3 mid-span drops under full tension (plus wind and ice loading). Take-offs can be made at any angle. The square shank bolt, with nut, tightens securely with a wrench.

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airplane passengers when they will be seated next to a popcorn-munching infant or a dear old lady who explains what Eisenhower should have done in Cuba. In such cases it is better to walk.

Most Idea, Least Reward

WHAT is the financial reward for an idea that greatly affects the entire world? Alexander Graham Bell did fairly well with his telephone conception. Henry Ford managed to make both ends meet after he marketed his Tin Lizzie. The neolithic genius who first burned a hole in a slab of wood, to make a bearing for the first wheel, probably became chief of his tribe, with an extra allowance of wives, bison hides and flint spearheads.

The man who first suggested that space satellites should be used for telephonic communication purposes is ARTHUR C. CLARKE, space scientist and scientification author. That fact has been acknowledged by Bell Laboratories scientists. In 1945 the British magazine *Wireless World* published an article by Clarke, setting out the characteristics and power requirements of communications satellites.

His reward? That article netted him fifty dollars. He received something much better than that for another article in HOLIDAY magazine. Otherwise all he stands to gain from the idea that will revolutionize communication in this world, and in the worlds beyond the space we shall conquer, is the fame of being the first to think of it.

The Moebius Ring

IN I. B. M.'s THINK (surely one of the best "company organs" ever published), James B. O'Connell discusses Charles Eames, described as a "gifted practitioner of the art of communications."

Eames is also maker of toys, motion pictures and furniture. He is a mathematician, architect, designer, inventor, educator and a few more things, a versatile genius who despises the restraints of this era of narrow specialization. Thousands saw his work at the Moscow Fair in 1959. You may see more of it at Seattle's "Century 21" next year, and in the New York World Fair in 1964.

In Charles Eames' workshop in Venice, California there is a large model of the ring immortalized by Dr. August Moebius, German mathematician, about a century ago. In case you are not familiar with this irritating puzzle, try this: Take a strip of paper, any convenient size, say about two inches wide and 18 inches long. Pencil a line lengthwise down its center, from end to end, on one side only. Now join the two ends together with Scotch tape or mucilage, first turning one end over 180 degrees, thus making a loop with a twist.

Take scissors and cut right along your pencilled line. Now explain what has happened to some ordinary telephone man who isn't conversant with mathematical marvels. Particularly, expound how come your slip of paper starts out with two surfaces and finishes with only one. You may have a lot of fun before they lead you, gently but firmly, to a padded cell.

In The Mail

A HAPPY letter from Nels G. Hasselblad, of The Pacific Telephone & Telegraph Company, brought on a severe attack of Them-was-the-good-old-days-itis. We worked together in Seattle, forty years ago. Western Electric was installing the machine switching system with 1100 men, most of whom had never seen a relay and thought a condenser was part of a still.

Our major excitements were making radio sets with a chunk of galena and some bell-wire wrapped around a cereal carton — and hold-ups. It was during the winter of 1921-1922. The post-war boom had not arrived, and that was before our Welfare States had made unemployment a profitable career. An out-of-work was usually an out-of-food.

Since then, Nels Hasselblad served with distinction in the U. S. Navy for six years. He was Communications War Plans Officer for the Thirteenth Naval District. He is now District Traffic Manager for Pacific, in Burbank, California.

Puts profits within easy reach

The convenience of mobile communications without disturbing vehicle comfort, appearance or safety . . . this is what you can offer subscribers with the new 150 Mc AChieverfone mobile radiotelephone by AC.

The AChieverfone control head is only $4\frac{1}{16}$" high, 6" deep and $8\frac{7}{8}$" wide (including handset). This means that it can be positioned *anywhere* on or under the dash, on the transmission hump or even in some glove compartments. Furthermore, the AChieverfone control head never impairs driver vision or crowds front seat passengers.

The AChieverfone is as modern and attractive as today's newest household telephones. Compact cars or limousines, AChieverfone blends with all car interiors, yet it's rugged enough for the cab of a construction truck!

Attractive styling and compact design are only part of the AChieverfone story. Pushbutton-controlled four-channel capability, proven reliability, low initial and operating costs, and fast, easy installation make it the most imitated mobile radiotelephone on the market.

Let an AC sales engineer personally demonstrate the AChieverfone for you. Write or call AC today.

SPECIFICATIONS—FCC Type Accepted

Transmitter: 144-174 Mc, 4-channel
RF output: 22.5 watts into 52 ohm load

Receiver: 144-174 Mc, 4-channel
Wide Band (60 kc) or Narrow Band (30 kc) models available (Bands converted to Narrow or Wide by substituting IF filter)

Frequency Stability: within 0.0005%

Selective Signaling: 51,000 five-digit (compatible, 2-tone sequential) codes available

Size: Receiver-Transmitter, $21\frac{1}{16}$" x $8\frac{7}{8}$" x $6\frac{1}{4}$"

Weight: 37.25 pounds, including receiver-transmitter, control head and cable

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Phelps Dodge has added Paper Insulated Stalpeth Sheathed Cable to its distinctive line of modern telephone wire and cable.

The same dependability of product found in every Phelps Dodge telephone wire and cable is built into Phelps Dodge Stalpeth. This service reliability is achieved by combining the finest quality materials with years of research and development in the manufacture of communications cables. The result? A complete control of quality

Latest addition to the extensive line of Phelps Dodge Telephone Wire and Cable

PHELPS DODGE STALPETH!

throughout fabrication that assures lower maintenance costs and helps extend service life.

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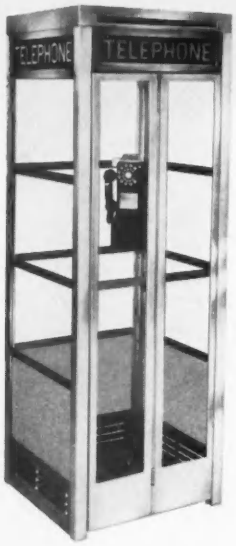

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Where space is costly, you can still attract and serve revenue-bearing customers profitably with Alcoa® Aluminum "Compact" Indoor Booths. Only 28¾ in. square, this sturdy booth takes *26 per cent less floor space* than the larger outdoor model! And flush roof design lets you fit booths closer in tandem where traffic calls for multiple installations.

In harmony with any modern décor, clean-line styling of Alcoa "Compact" Booths attracts customers. Sturdy construction features heat-treated Alcoa Aluminum Extrusions . . . cuts maintenance, virtually eliminates damage from vandalism. Alumilite† finish stays bright and clean with only occasional soap and water washing.

Call your telephone jobber for more information. Or write: Aluminum Company of America, 1781-T Alcoa Building, Pittsburgh 19, Pa.

*28¾ in. square!
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ANNOUNCEMENT

Some of our customers and distributors have expressed concern that, with the introduction of our new line of FLOTROL rectifiers and other devices using solid-state components, we are discontinuing the manufacture of LORAIN equipment using selenium rectifier and magnetic components. This is not the case.

Lorain *is not* discontinuing the production of FLOTROL charger-rectifiers, SUB-CYCLE ringing converters and LORAIN power supply units of the type which have served the communications industry so reliably in the past. LORAIN is still supplying the continuing demand of the communications industry for these dependable units.

LORAIN has also designed and is producing for the communications industry, the most advanced charger-rectifier equipment, frequency converters, tone generators and power supply units which utilize silicon rectifiers, transistors and other solid-state devices.

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EDITORIAL

COMMENT

"You Can't Do It All With Inventions"

LAST MONTH two veteran telephone men, Roy C. Echols, president of the Indiana Bell Telephone Co., and Louis H. Meyer, president of the General Telephone Co. of Indiana, addressed the annual convention of the Indiana Telephone Association, and emphasized a few facts, we believe, deserve circulation beyond the boundaries of the good state of Indiana.

In brief, the remarks of Mr. Echols and Mr. Meyer dealt with three subjects of top importance to all members of the telephone industry and the subscribers they serve: (1) competition; (2) telephone growth; and (3) the financial requirements of providing good telephone service.

Indiana Bell President Roy Echols stressed a fact that we believe all telephone companies, whether they be large or small, must thoroughly understand, when he stated, "*Telephone companies must be so far out front in our line of work that people will always look to the telephone companies first when they want communications of any kind.*"

"*We are not afraid of competition,*" President Echols emphasized. "*All we want is the normal amount of freedom to manage our business that any well-managed competitive enterprise has. We can continue to grow and modernize — to innovate and experiment — to develop and introduce new communications services to contribute to the growth of the country, to the security of its defenses, and to the steadily improving standard of living of its people.*"

Indiana Association President Louis Meyer took a bit different lead for his remarks to the Indiana convention when he stressed the financial requirements of providing good service and said he "*sees no hope for a leveling off of the price structure.*"

"*This problem of increasing costs,*" President Meyer stated, "*is especially grave right at this time when we are all facing the need to greatly expand our plant and facilities. Despite continual efforts towards new equipment, improved techniques, and effective management, increased productivity is not beginning to overcome increasing costs. . . .*"

In those two excerpts from two excellent convention addresses we have a summing up of the telephone industry's recognition of two facts: (1) if the telephone industry does not provide its subscribers with the various types of communications services they want and need other industries will march in and do the job; and (2) technological improvements — important as they are — have been unable to overcome the effects of inflation upon the telephone industry.

Any close observer of the telephone industry knows the industry has improved old methods, introduced new methods, and that never in the history of the industry has there been so much technological advancement as that made since World War II.

But, as President Meyer inferred, greater efficiency and economy of operation do not and cannot be expected to offset the big increase in the cost of furnishing telephone service that inflation has brought about.

New inventions, new developments, and new processes making possible new operating economies are helpful but they cannot do it all. Higher exchange rates are also necessary.

Already the industry is moving ahead with its plans to provide an 80% telephone growth in the next 10 years. During the same period it plans to expand and improve its facilities to bring about a 100% growth in messages and a 700% increase in overseas messages.

These are good goals. But to accomplish such goals requires more research expenditures, more construction and more new capital, plus sound management, the holding down of costs, and adequate earnings.

It also requires, we believe, a recognition by the telephone-using public and the regulatory commissions of the fact that the telephone industry *can't do it all with inventions.*

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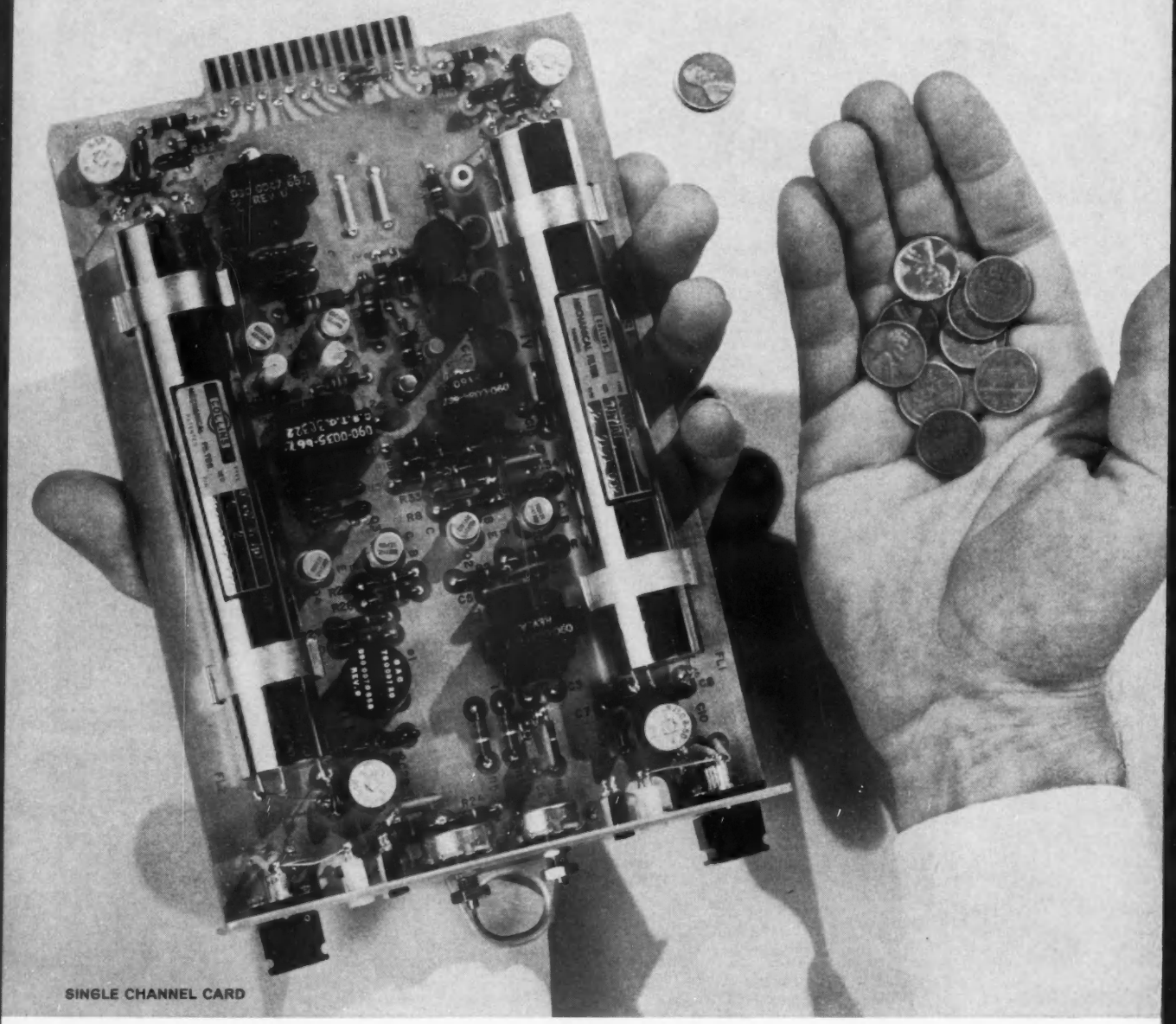

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OBSERVATIONS

Antitrust Hearings Scheduled By Subcommittee

HEARINGS START JUNE 14

House Judiciary Antitrust Subcommittee schedules hearings June 14-15 on antitrust aspects of communications field, with emphasis on common carrier topics; Loevinger, Minow are slated to be principle witnesses. Sessions to cover "all antitrust matters related to communications," Congressional source says . . . Hearing scheduled before release of letter from Loevinger to CTU official stating antitrust complaints against AT&T being investigated, and that Justice will be in position to know what steps to take after completion . . . Justice spokesman describes investigation as "routine," and AT&T statement says letter sounds like "usual acknowledgement" . . . Hearing will give Minow first opportunity to state views publicly on telephone earnings.

By ROLAND DAVIES and FRED HENCK

THE House Judiciary antitrust subcommittee, which some time ago held hearings on the 1956 Bell System-Justice Department antitrust consent decree, will hear government officials review antitrust matters affecting the communications field at sessions Wednesday and Thursday, June 14-15, it was learned last month.

The sessions were described variously as "consultative," and a "review" to ascertain developments which have taken place since the House group issued its reports on the telephone decree, and on antitrust matters relating to the broadcasting-television industry.

Asked if the sessions would encompass subjects which are newly developed since the previous hearings, such as space communications, a Congressional source said they would cover "all antitrust matters related to communications." He added that primary emphasis will be on non-broadcast matters.

Main witnesses will be Assistant Attorney General Lee Loevinger, in charge of the Justice Department's Antitrust Division, and FCC Chairman Newton N. Minow. Mr. Minow undoubtedly will be accompanied by specialists in the various fields to be covered, particularly in view of his short tenure on the Commission. It is not expected that any non-government witnesses seeking to testify will be heard at the June 14-15 sessions.

Plans for the hearings definitely had been made, and the dates were set, before last month's front-page treatment of a letter from Mr. Loevinger to E. L. Hageman, National President of the Commercial Telegraphers' Union Western Union Division, in reply to Mr. Hageman's letter to the Attorney General, which had asked that the Bell System be required to vacate the record communications field.

Entire text of the letter to Mr. Hageman, signed for Mr. Loevinger by W. Wallace Kirkpatrick, First Assistant in the division, was as follows:

"Your letter of April 28, 1961, to the Attorney General, concerning the effect which certain actions of the American Telephone & Telegraph Co. are having on the ability of the Western Union Telegraph Co. to compete in the communications field, has been referred to this division for reply.

"The Antitrust Division has received a number of complaints concerning activities of (AT&T), and as a result it is conducting an investigation of various aspects of the telephone industry. On completion of the investigation, we will be in a position to determine what action can best be taken in response to the various complaints we have received.

"I appreciate your bringing this matter to my attention, and you may be assured it will receive careful consideration."

Evidently deluged by inquiries after the letter to CTU was made public and was prominently featured under such headlines as "AT&T Probe on Antitrust Charge Opens," and the company's stock went off as much as seven points, Justice Department officials were quoted

Next page, please

as terming the matter "a routine check into some complaints we have received."

Mr. Loevinger was quoted as saying "We are conducting, and have been for some time, an investigation into a big and very complex industry." He reportedly described the letter to Mr. Hageman as a "little strong," and added that it is "no secret" that Justice is interested in telephone industry activities. He pointed to the 1956 consent decree, and compliance checks to insure it is being lived up to, and the department's expressed views on antitrust aspects of space communications.

A statement by AT&T declared that "We have not been informed of any unusual investigation going on at this time, and we believe we are in full compliance with the antitrust laws. As reported in the press, the (Justice) Department's letter sounds like the usual acknowledgement which might apply to any complaint."

Hearings before the House Judiciary antitrust subcommittee were held in mid-1958, and the nine-member group later adopted by a 4-3 vote of those present a report critical of the consent decree.

Since then, Chairman Celler on several occasions has called on the FCC to institute an interstate telephone rate investigation, most recently about a year ago, when Frederick W. Ford was Chairman of the Commission. It is known that the FCC has periodically discussed the subject of interstate telephone earnings, but of course no action has been taken since the $50,000,000 interstate reduction of upwards of two years ago.

So far as is known, Chairman Celler has not renewed his demands since the present Democratic administration took office. The hearing next month will afford Chairman Minow his first opportunity to express his views publicly on the subject, since the interstate earnings topic seems certain to come up during the hearings.

Present membership of the antitrust subcommittee, in addition to Chairman Celler, consists of Reps. Peter W. Rodino, Jr. (N. J.), Byron G. Rogers (Colo.), Lester Holtzman (N. Y.), Harold D. Donohue (Mass.), and Herman Toll (Pa.), Democrats, and William M. McCulloch (Ohio), William E. Miller (N. Y.), and George Meader (Mich.), Republicans.

May Points Up Tax Program's Basic Fault

THE BASIC fault of President Kennedy's legislative proposal calling for personal income tax withholding from dividend and interest payments is that "dividend payers would be required to withhold funds unjustly from dividends paid to thousands of tax-exempt organizations and the great many thousands of individuals having insufficient income to be liable for a tax," American Telephone & Telegraph Co. Treasurer L. Chester May declared last month.

Mr. May, appearing Friday, May 26, before the House Ways & Means Committee's hearings on President Kennedy's tax program, remarked that "This is one case where the proposed legislation is far too kind and considerate to the corporation or dividend-paying agent, and much too callous to the rights and convenience of individual citizens."

Outlining statistics to demonstrate that many AT&T shareowners would be entitled to withholding refunds, Mr. May declared that "Unless these flagrant cases of overwithholding can be eliminated, we strongly recommend that the proposed legislation be rejected. In the event, however, that it is the will of this Congress to enact withholding legislation, modifications should be made to exempt such cases from withholding.

"Two simple procedures are possible. The first is to permit tax-exempt organizations to file a certificate of exemption from withholding with the dividend payer, in the form prescribed by the Internal Revenue Service, which would be good until withdrawn or cancelled. The second would be to permit any individual taxpayer who does not expect to be liable for any tax on income in the coming year to file a certificate of exemption from withholding with the dividend payer in the current year, again in the form prescribed by the Internal Revenue Service, which would be good only for the year in question."

Most AT&T shareowners, he declared, "are people of relatively modest means, many of whom are retired from active employment. At the present time, more than 100,000 of these shareowner accounts own three shares or less, and have been receiving less than $10 each year in dividends. About 220,000 accounts hold six shares or less and have received less than $20 annually in dividends; half a million hold 15 shares or less with less than $50 annually in dividends; and 850,000 own 30 shares or less with less than $100 annually in dividends.

"The withholding proposal provides for a quarterly refund of any overwithholding of $10 or more per quarter. A quarterly dividend of $50 or more would be required to produce $10 or more withholding. On this basis, about 1,250,000 of our shareowner accounts, who receive less than $50 in dividends each quarter, would not be eligible for quarterly tax rebates for overwithholding but would have to wait until well within the calendar year following the actual year of withholding to secure the refund."

Mr. May emphasized that AT&T does not condone failure to pay proper income tax on dividends, but that is it concerned about the "glaring flaws" in the proposed legislation.

IN THE NEXT ISSUE

TELEPHONE PROTECTION POLICIES

By T. De Witt Talmage

REASONS FOR WHAT WE DO

By D. A. Perigo

Regulatory Philosophy And Economic Progress

TIME TO RE-APPRAISE OLD STANDARDS

Encouragement of the regulated utility companies to make a full contribution to industrial growth in the country poses additional questions for regulators, and invites consideration of what regulatory action would be most helpful in attaining the objectives of service and growths that currently are of more than ordinary importance.

By JOSEPH J. BROWN *

AMERICA's economic progress is now a matter of nation-wide concern. Almost daily we see or hear evidence of this fact in our newspapers, and on radio and television. Reportedly, Russia is developing its productive capacity at a much faster rate than we in the United States. Our average annual growth rate of about 3% must be expanded to 5% or more if we are to successfully meet the competitive challenge of the communist nations.

The present pause in the forward movement of the American free enterprise system serves to emphasize even more the need for remedies to restore the growing vitality of the nation's industrial machinery. The present national Administration has made various proposals to inject new life into the economy. It is significant, however, that the views of the Administration, as well as the political opposition, seem to generally agree that the final answer to this problem rests with private American industry.

The mechanics of stimulating the men and machines of industry may vary, but there is wide acceptance that the decisive answer to restoration of economic balance and satisfactory progress in this increasingly competitive world finally rests on the productivity of the nation's private industrial system.

Mr. Brown is Chairman of the Nebraska State Railway Commission.

Public Service Industries Report Continual Advances

AMIDST all of the varying appraisals as to the real state of the economy and the many proposals as to how best to stimulate it, one significant fact seems to have been overlooked: Not all American industry is in trouble.

When we read the lists of industries where sales and production are down, there is a consistent absentee. I refer to the public service industries. Invariably they are reporting continued advances in number of customers and sales volumes. True, the rate of growth may have lessened some in certain areas but, in the main, the public service industries have continued to move forward.

In fact, the *National City Bank Letter* of March 1961 reflects a 1960 growth in dollar earnings over the previous year of 8% for the gas and electric industries and 9% for the communications industry. Incidentally, these two rates of earnings growth are among the healthiest in the 38 industrial groups included in the Bank's earnings summary.

It is recognized that these public services industries deal with an essential service. Nevertheless, it is significant that they continue to progress when others may falter. It speaks well for the fundamental condition of the economy. Beyond this, it is a reflection of a healthy condition for these utilities and the atmosphere and

conditions in which they function. The fact that the regulated service industries are leading the industrial parade is a tribute to the effectiveness of the American system of private operation of its essential public service industries under enlightened public regulation.

Regulatory Objectives

THESE developments — and the longer range competition for continued supremacy of the American free enterprise system — prompt expression of a few thoughts as to the objectives of the regulatory system as it is practiced in this country.

As one regulator, naturally I am pleased to observe the industries, whose welfare I share, meeting rather fully their obligations to the nation in this period of economic hesitation. Of greater importance, I am sure, is to determine that regulated American industry makes its full contribution to the longer range growth and advancement of American industry in its competitive world struggle.

Our success in this competition rests to a considerable extent on the public service sector of our industrial enterprises. The regulated segment of industry represents some 25% of total industry. Unless this substantial section of industry can perform adequately and up to its capabilities, it is certain that the total national effort will be adversely affected. This constitutes a challenge to all of us in the regulatory field to make certain that the industries under our surveillance are equipped with the necessary tools and capabilities to meet fully their responsibilities to the public they serve, to the national interest, and to the economic struggle ahead.

Time To Re-Appraise Regulatory Standards

THESE broadened requirements seem to add a new dimension to the regulatory sphere — that of growth. Perhaps it is not entirely new but, at least, it assumes much greater importance and requires considerably added emphasis.

What should we as regulators be doing about this? It seems to me we could very reasonably re-appraise the standards generally followed in judging the performance and needs of the public service companies under our jurisdictions.

Quality and adequacy of service should continue to receive primary attention, of course. Continuity of service should be maintained, with interruptions kept to a minimum. Storm-proofing of plant should be encouraged to aid toward a greater service reliability. With more and more machines transmitting data over the facilities of our communications companies, the need for accuracy and reliability becomes even more important.

The scope of service offerings of the telephone companies is receiving increased attention and efforts should be continued toward further expansion. Extended area service introductions have wide appeal to telephone customers in most instances.

Expanding of the local service calling area to coincide with wider community interest areas adds to the appeal and value of telephone service. Customers naturally like the waiving of restrictive toll charges. They use the service more extensively, which means greater satisfaction and greater value.

Recently, we have witnessed similar efforts in the long distance field with the announced offering of Wide Area Telephone Service. These broadened service opportunities should result in expanded usage and a greater facilities requirement. These efforts fit most appropriately into the enlarged pattern of growth being sought by all American industry.

The public service companies should be alert for additional opportunities to enlarge interest in and requirements for use of their facilities. In doing so, these companies can establish their own institutional identity more firmly, increase customer satisfaction, bring in additional revenues, and more effectively meet competition for the consumers' favor.

Regulatory Encouragement

ENCOURAGEMENT of the regulated utility companies to make a full contribution to industrial growth in the country poses additional questions for regulators. It seems to me that it naturally invites consideration of what regulatory action would be most helpful in attaining the objectives of service and growth that currently are of more than ordinary importance.

I should think that our attention would be directed foremost to assuring the financial ability to undertake whatever projects may be indicated. Adequate financial resources are essential to growth and expansion. The means must be available to research and develop the techniques and instrumentalities which lead to improved service offerings.

Following this comes the necessary ability to provide the funds to support the expansion of plant to be required. Of necessity, utility companies have to look to the capital markets for most of their new funds for plant expansion. Competitive industry ordinarily is able to finance a sizeable proportion of its plant expansion and replacement needs from internal sources. Regulated business has operated under lower profit margins and, as a result, its new capital askings in the market are comparatively large.

Capital Investment Problem

ONE phase of this new capital requirement for utility companies deserves sympathetic consideration. These public service industries have comparatively heavy plant requirements in relation to the revenue potential. Their investment needs are much greater than most other service industries. These money requirements result from two basic causes — (1) monies to finance new plant expansion and (2) monies to cover deficiencies in depreciation.

Under present accounting procedures, depreciation

accruals are based on original cost. As plant is retired from service due to deterioration or obsolescence, the funds available through the depreciation reserve restore only the dollars originally invested in plant. With the decline in the purchasing power of the dollar, the funds thus recovered are ordinarily insufficient by more than half to cover the cost of financing the replacing plant. This constitutes a heavy burden on the regulated companies.

Until the time arrives that depreciation accounting for regulated companies is adjusted to recognize dollar erosion and to protect the real value of plant committed to public service, I feel that regulation has an obligation to make allowances to assist the utility companies in meeting this capital investment problem.

Competition

IN AN earlier article in *Telephone Engineer & Management*, I expressed my views on the greater competition confronting regulated industry. Unquestionably, these businesses are up against a more intense and more varied competition than ever before.

The historic contest among all industry for the sales dollar, the investor dollar, and for manpower continues to exist, of course. However, the consumer of 1961 is being steadily educated by American industry toward a higher standard of product and service.

The public service companies are not exempt and the consuming public looks to them also to provide greater enjoyment and satisfaction from the services they provide. Some requirements involved might be: new and improved instrumentalities as a must, enlarged service offerings that provide more for the money, less breakdowns in service or equipment, greater productivity to offset inflationary tendencies, and perhaps the scarcest — but most highly sought — courteous, sympathetic, and careful attention to individual customer needs and problems.

Only by matching or exceeding the competitive efforts of others in ways such as these can the utility companies meet the pace. Success involves creative and farsighted management alert to the changing needs of a changing world. Change flows from new ideas, new conceptions of service opportunities, new equipments, and the like. The result: greater service appeal, larger sales volumes, greater plant expansion, and, incidentally, a full contribution to economic growth.

"Misses and Hits"

REGULATED companies that approach their job in this framework deserve the support and encouragement of those of us on the sidelines. We should help point the direction, and provide a reasonable amount of stimulant. These companies must have the financial means to "turn around." They will have to be in a position to experiment — and expect some misses as well as some hits. They may be required to advance the installation of certain equipments — and possibly hasten the retirement of older equipments.

They may find it necessary to enlarge construction programs and locate more dollars for capital investment. The companies that meet these challenges and progressively tackle the many problems involved particularly deserve support. Those that do take the necessary risks and successfully meet these competitive requirements certainly are entitled to some additional reward in any regulatory determination of earnings allowances. Recognition of this nature should serve to stimulate others and contribute to a greater over-all industry effort toward progress and advancement.

Earnings Requirement

VOLUME after volume has been produced in analysis of the appropriate means of regulatory determination of earnings needs. Inspection of the many orders issued by the regulatory commissions in the various states would probably indicate as many different approaches or formulas as there are commissions making judgments. It is recognized that commissions have wide latitude in method as well as result in most jurisdictions. This is advantageous as it permits change in regulatory policy as required to better meet changing conditions and satisfy public requirements. I think the earlier analysis of industry obligations as we face them in these crucial years of the 1960's does warrant some changes in regulatory philosophy in some situations.

A basic problem in the area of regulatory philosophy is original cost versus fair value in valuation of utility plant investments. Recently we have observed some increased recognition of the fair value doctrine. Undoubtedly, such changes that have taken place are attributable, at least in part, to a growing realization of the national economic need for greater growth and progress among regulated industry as well as all of industry.

These companies must contend with many factors that tend to adversely affect earnings level — i.e., annual wage increases that give no sign of abating, and continual increases in tax burdens that promise to continue higher in light of growing local, state, and federal needs. (On this matter of taxes, we see altogether too many proposals to single out utility services for specialized taxation largely because of convenience, I suspect, and completely ignoring the essential nature of these services and the heavy tax load already being assumed.)

Other adverse earnings influences include continuing increases in investment per unit of service, deficiencies in depreciation accruals, heightened new capital needs, plus the necessity of broadening the scope, value, and appeal of service to the consuming public. Much justification exists for more liberalization in the treatment of utility companies by regulatory commissions.

The greater attention to fair value or other alternatives affording similar results seems justified as regulated industry and their overseers strive to meet their public obligations as fully as possible and make a full contribution to the economic progress of the country.

A TELEPHONE ENGINEER AND MANAGEMENT

REPORT

FROM THE FIELD

Plant Engineering-Financial Responsibility

AN INCOME PRODUCING FACTOR

Plant Engineering's control over investments is twofold: First, it involves control over the amount, kind, cost, and timing of items going into the construction program, and, secondly, it involves control over engineering costs.

By J. T. ROBERTS

EDITOR'S NOTE: — As we were preparing this article for publication we were advised that the author, J. T. Roberts, staff engineer of the Hawaiian Telephone Co., Honolulu, had been stricken with a fatal heart attack on May 13.

Mr. Roberts, a former regional engineer for General Telephone Co. of Calif., had joined Hawaiian Telephone Co. nine months before his death, and, according to Chief Engineer R. H. Allen "he quickly won our admiration and friendship. He enthusiastically promoted all the high principles of which the telephone industry has so long been proud. It is entirely appropriate that you publish his article as planned. Mrs. Roberts has, in fact, requested me to urge you to do so. . . ."

THE telephone industry, more than any other important industries, uses large amounts of capital. The capital requirements of most telephone companies are generally around three or four times their annual income. Even a high-capital industry such as steel does not normally require capital in excess of its annual revenue. In most manufacturing industries the ratio between total assets and revenue is at least one to one. A large capital investment obviously makes for high costs. These high costs, regardless of output, will not vary.

To a large extent Plant Engineering can throw considerable weight around in relation to capitalized costs. Plant Engineering's control over investments is twofold. First, it involves control over amount, kind, cost and timing of items going into the construction program. Secondly, it involves control over engineering costs since over half of these are capitalized. The telephone industry is unique in that the greater portion of its assets are invested in plant facilities rather than inventory as is found in most industries. Thus, the plant facilities become the major income producing factor.

One of the most effective and positive controls over expenditures is our dusty old friend, *the budget.* For the most part, we recognize the necessity for intially preparing a budget with care and caution. However, after its preparation and presentation it generally grows penicillin until the first budget review.

The State of Hawaii Public Utility Commission has broad powers, yet does not specify or regulate the *manner* in which earnings can be obtained.

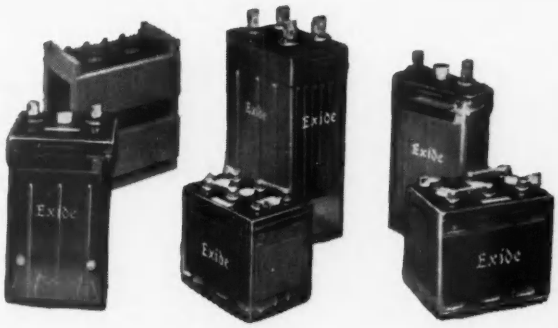
Under Chapter 3, *rights,* Article 1, Section 456 of the State of California Public Utility Code, the following is found:

"Nothing in this part shall be construed to prohibit any public utility from profiting to the extent permitted by the commission, from any economies, efficiencies, or improvements which it may make. The commission may make or permit such arrangements with any public utility as it deems wise for the purpose of encouraging economies, efficiencies, or improvements and securing to the public utility making them such portion of the profits thereof as the commission determines."

Other state utility commissions approximate the same. This then, would seem to indicate that economies, efficiencies, and improvements have a great deal to do with profits.

Rate of Return

BASICALLY, we know how many subscribers we have today and we know how many we will have tomorrow. Extending this, we can determine the revenue



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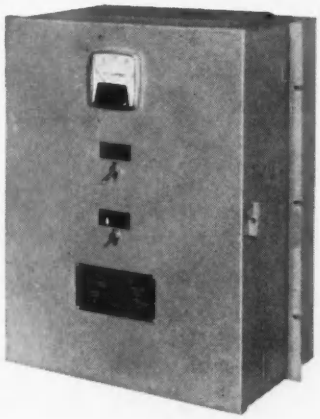

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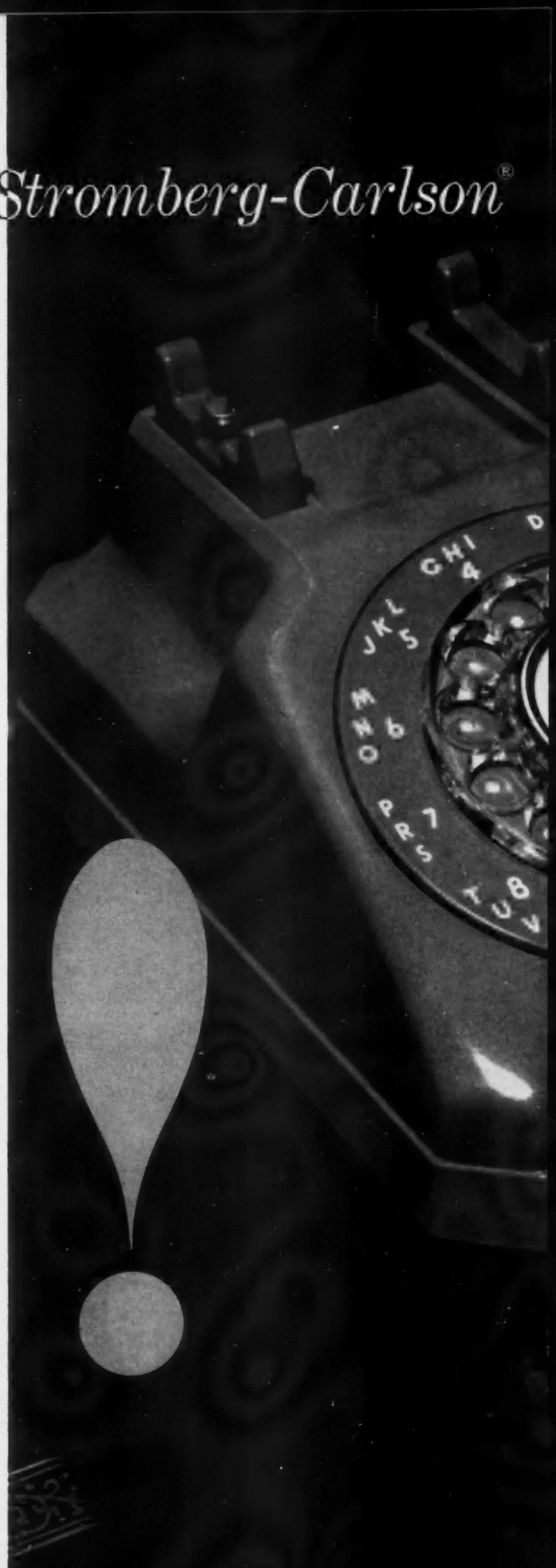

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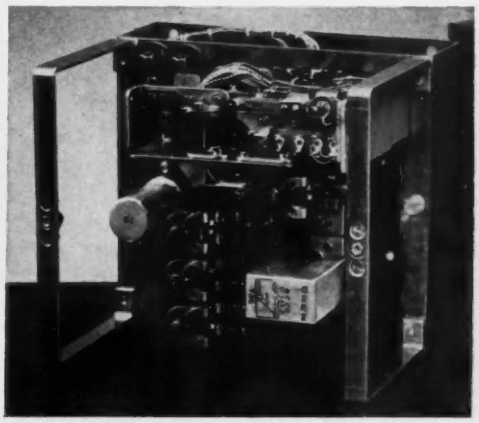

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GENERAL DYNAMICS | ELECTRONICS

today and the expected revenue tomorrow. Whether a good rate of return is forthcoming, is, to a large extent, a matter of how wisely we choose to provide for our subscribers today and tomorrow.

Rate of return on invested computations provide the information as to how much profit should be made in order to provide a fair return on capital; a revenue forecast establishes how much we have to work with. The budget and reports of actual performances are the links between the two.

The elements of cost with which we are directly associated such as direct labor, direct material and other expenses over which we have direct control should be the most easily estimated and controlled. The major problem of estimate and control should be in the area of costs which are not directly related to responsibility such as indirect labor, general and administration expenses, etc.

How well we administer and control these costs will readily point out whether Plant Engineering is a costly problem or a helpful asset. How well these things are done can be attributed, in the main, to the moldering budget. A budget should be a dynamic need of direction and control; scanned, checked, and improved daily. Not a necromantic, quasi-prepared bulletin to the staff.

Preparation Of The Plant Engineering Budget

TO BE successful a budget must have the support and the enthusiasm of top management. Secondly, it must be proposed by the actual people who will be responsible for its accomplishment. This means the first or second line of supervision. Who else is in a better position?

Manpower: This probably is one of the most important items in the budget, yet most manpower budgets are based on the previous year, signs of the Zodiac, or an all powerful "cut" or "add."

Engineering manpower should be based solely on two items: (1) The amount of work that must be provided the construction and installation forces to meet subscriber demand; and (2) (*and most important*) — the manner in which it is to be provided. In other words, what new procedures, systems, types of engineering, or other efficiencies are being affected to provide the required work for the construction forces in a manner improved over yesterday.

These are various measurement programs used as a basic start to compute manpower requirements: (a) Ratio of engineered hours to hours worked; (b) ratio of engineered construction dollars to engineering expense dollars; (c) amount of construction dollars engineered; (d) amount of pair feet cable engineered; (e) amount of sheath feet cable engineered; and (f) amount of switching equipment engineered (a given piece of equipment worth a given number of units).

And there are many more. It should be stressed however, that whatever the measurement program, it is only a guide. *It must* be tempered by many other factors.

Today, it appears that many Plant Engineers prefer to augment their departments rather than to train their people to be imaginative, responsible engineers. It is seldom an engineer cannot build a better mouse trap if encouraged and given the opportunity to do so. It would seem logical that if we would devote more effort on a continuing basis toward developing reputable, ethical engineers, we could continuously operate more effectively and economically. There are few engineering offices in the telephone business across the nation that could not have operated with existing manpower during the boom in the 50's had their people been trained and developed on a sustaining basis. Rather than this, most utilities relied on brute force. A truly ineffective and costly decision. Training, like maintenance, is a negative determinate until it is too late.

After the budgeted manpower decision has been reached, a constant review is necessary in order to make certain that the benefits received are commensurate.

W. J. King, Professor of Engineering at UCLA once stated, "That frequently developments are carried along by virtue of Newton's First Law of Motion long after they have ceased to yield a satisfactory return on the investment."

Thus, when the manpower is determined so is the raw engineering labor cost.

Construction Program: — To the greatest extent, engineered plant is, in some manner, tied to a forecast. Whether the forecast is a product of commercial, engineering, or a development section, makes little difference. What *is* important is the accuracy of the forecast. An accurate forecast is money in the bank. Insofar as Plant Engineering is concerned, it forestalls additional field trips, over or under-building, re-engineering, revisions, meetings, conferences, and explanations.

All that is engineered and constructed should provide good service and be profitable. By profitable is meant a fair return on the shareholders investment. The engineering of plant facilities means the economical design of plant facilities. And few designs are ever accurately contrived without detailed planning.

There are many types of construction, installation or rearrangements that are difficult to forecast — road improvements, various district, city, county, state or federal improvements, damage jobs and a myriad of others. However, a well informed planning group can well predict most of these. Very seldom is this type of work income producing or even a recover-cost possibility. Yet, they must appear in the budget as they represent a considerable expenditure of engineering time and construction time.

The proper planning, for any given area, far in advance of any detailed engineering or construction reduces the possibility of error and does not place the engineer in the position of a fireman. The continual putting out of fires is expensive and certainly indicates a lack of planning.

The ultimate design of an area should first be decided and then merely worked backwards. This, of course, appears to indicate an absurdly simple procedure when it actually is quite difficult. However, an accurate picture of the ultimate in any plan, will forestall "shotgun" engineering and questionable future design.

Once the ultimate requirements are known, the "what" is resolved. The "when" then becomes the important factor. The timing of the placement of plant facilities is of prime importance. Too early construction of installation places idle facilities that pushes the income dollar too far away from the investment dollar. Too late construction and installation results in held orders, poor public reaction, "shotgun" engineering and rush work for all.

With proper timing, it is a relatively easy matter to provide the construction and installation forces with work that needs to be accomplished. Remember, the hours of labor given construction and installation is converted to manpower. These people, should at all times, be given a schedule of work that is balanced, fair and well planned.

The schedule should be prepared jointly, considering manpower and work load against required due dates. Thus, when all the aforementioned are considered, only necessary work is provided construction and installation. No foo-faw, no frills. These then, are the items in the construction and COE budget and upon which engineering labor should be expended.

Can we sum up by saying — that which is the construction and COE program in the budget shall be work deemed necessary to provide subscriber facilities in an economical and orderly sequence.

Supplies And Equipment: — What are the true requirements insofar as stationery, furniture, equipment and various tools for the coming months? To what extent will they be utilized? Are they actually required?

Most of us have enough memo pads, pencils and other items of stationery in our desks to last at least six months. On top of this, there is probably enough on order to paper the building. A small thing? Not at all, when it is honestly appraised as an expense item. Few engineers would run a household with several weeks supply of food, gas and oil, etc.

Ascertain your supply requirements — inventory regularly until you can operate with an absolute minimum of stationery stock. This will reduce overhead measurably.

The same approach should be applied to desks, chairs, files and other furniture and equipment. Don't carry spares! This only adds to overhead.

Vehicles: — Make good use of existing vehicles. This indeed, is another capitalized expense that should be watched carefully. The old war time question, "Is this trip really necessary?", still holds water. It is realized that most engineers would certainly prefer to drive a new car in preference to an older one. However, our subscribers will certainly not mind if we drive an older car, provided it is kept safe and clean.

Miscellaneous Costs: — This includes right of way documents, joint pole costs, contract work, blueprints, stamps, expense vouchers, etc. "Watchdogging" these items certainly does not infer that they should be watched as was done by Charles Dickens' character, Scrooge. It *does* mean that they should be budgeted and administered with care.

Check That Budget!

AFTER the budget submission and acceptance, don't stop there! Continuously check the actual expenditures against the budgeted expenditures. Actually find out "why" a difference exists. Continued efforts, at all levels, to improve a budget bring forth money making short cuts.

Above all, remember that the man in the office can't do all that has been discussed. It is unlikely that he can do *any* of it. It must be done by the very people causing the money to be spent.

The budget can be likened to a rudder on a ship. The rest is obvious. — *J. T. Roberts.*

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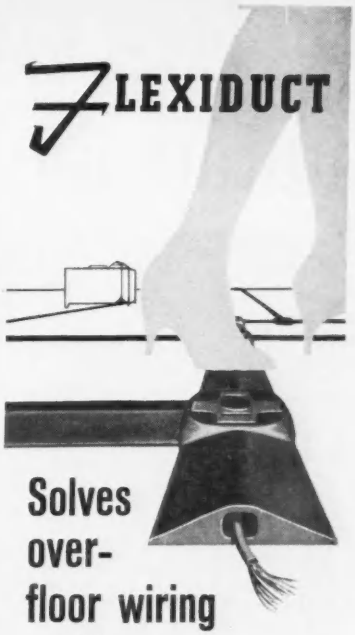

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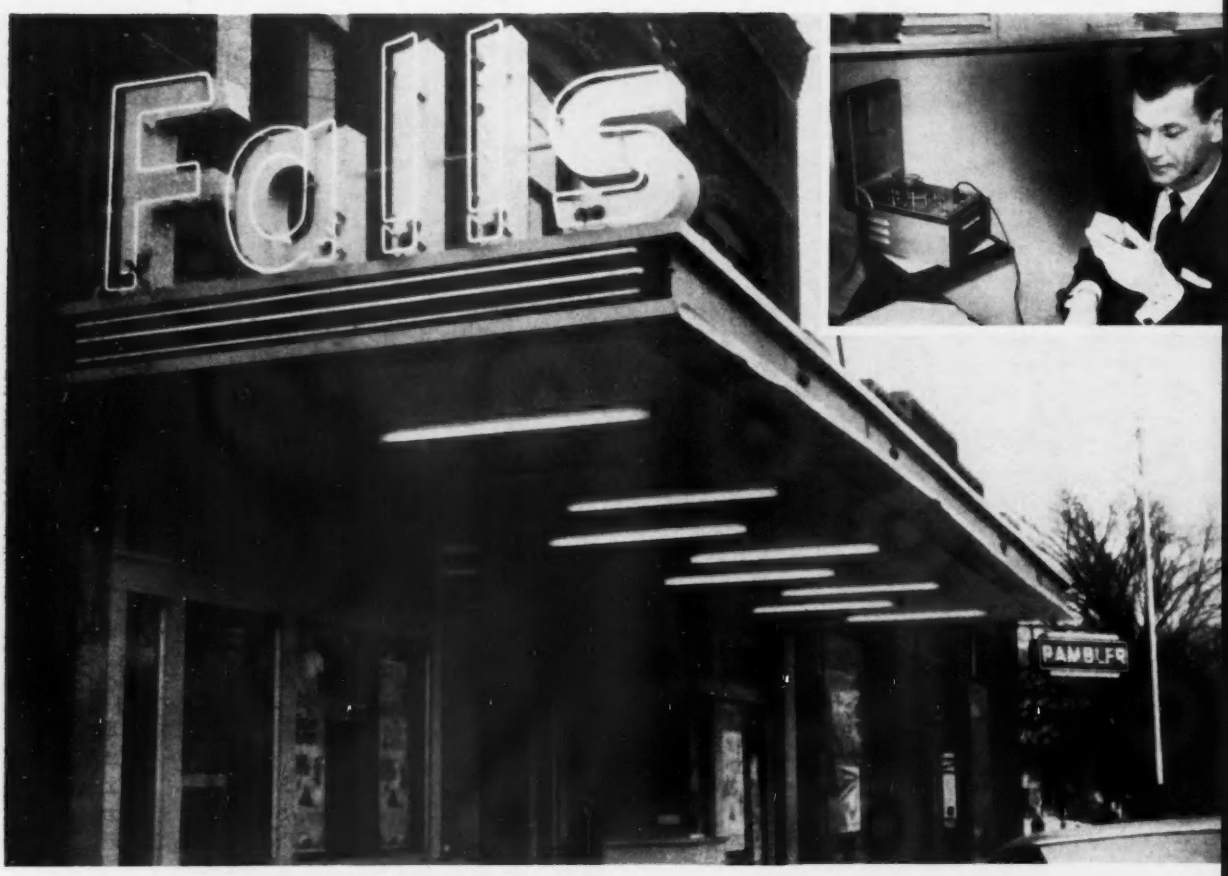

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An AO (answer only) model usually means increased income from two facets. (1) An extra station to handle these special calls, and (2) the Electronic Secretary answering unit itself (rental and installation charges).

A proof of the opposite page is being mailed to you. Use it as a sales tool. Show the theatre owners in your area how they can increase the flow of traffic into their establishments, just as Mr. Bares and others have done.

The AO model is also ideally suited to Supermarkets (many use it to announce daily specials, recipes, etc.), Stock Brokers (for latest markets and Dow-Jones averages), Churches (prayers and inspirational messages), or anyone who wants the advantages of automatic answering but does not need incoming messages recorded.

Electronic Secretary Industries, Inc., Subsidiary of GENERAL TELEPHONE & ELECTRONICS

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427 West Randolph St. Chicago 6, Illinois

PLANT ENGINEERING NOTES

By JOHN S. REED
Technical Editor, TELEPHONE ENGINEER & MANAGEMENT

New Sleeve Speeds Cable Work

NEW IDEAS AT WORK

Cable sleeves that can be assembled over cable without the need for wiping the joints are popular with telephone companies . . . New cable meter saves time in measuring cable . . . New portable electrical distribution system available for use on maintenance and construction trucks.

Cable Sleeve Features Snap-On Strand Supports

CABLE sleeves that can be assembled over cable without the need of wiping the joints have become popular with many telephone companies.

The cable sleeve (see illustrations) is a simple one-piece strand mounted design for new construction which is said to eliminate the objectionable characteristics of a split sleeve. It makes use of unique snap-on strand supports which require no tools for installing the sleeve.

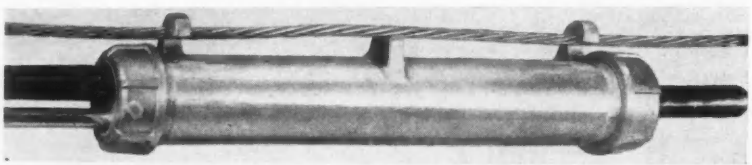
The sleeve is constructed of an aluminum alloy, said to be of highest quality, under a military specification for resistance to corrosion. It can be used for straight, branch or capped cable construction.

The sealing grommets are molded of highest quality neoprene affording excellent weather resistance. Heat resistance is 212°F and cold resistance is 40°F.

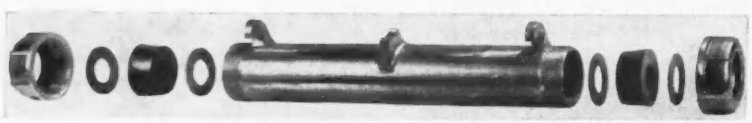
In manufacturing, the sleeves are pressure tested under water assuring an air tight splice enclosure guaranteed to hold pressure to 15 psi.

Only one tool is necessary for installing the cable sleeve, a 3-4 spanner wrench or a pipe wrench. According to the manufacturer, an inexperienced person can install the sleeve in less than two minutes.

One type of sleeve will handle straight-through splices or branch splices from either or both ends. The sleeve is salvageable upon relocation of plant and with the addition of two new grommets may be placed into service again.



Channell S-4 cable sleeve used on a branch cable splice. (Channell Cable Splicing Machine Co.)



Showing exploded view of Channell S-4 cable sleeve.

Cable Meter Saves Time In Measuring Cable

WHEN telephone cable is placed in a construction job, it is very important for the cable laying crew to obtain accurate measurement of the cable as it is placed, so that it may be properly accounted for on the company's records. The usual practice is for the crew to measure the cable with a tape measure, which is a difficult and time-consuming procedure, particularly so when this is done on the job.

A practical way to overcome this objectionable procedure is to use a cable measuring device which measures the cable as it comes off the reel.

The cable meter (see illustration) is designed to measure wire, cable and other flexible materials up to

Via Graybar

an IMPROVED TRANSISTORIZED REPEATER-AMPLIFIER

...made by Lynch

The new Repeater-Amplifier made by Lynch will plug into standard relay rack mountings . . . delivers more gain, more stable circuitry and better performance than any comparable repeater.

STEP UP PERFORMANCE WITH THESE EXCLUSIVE FEATURES

- **Provides highly stable output regardless of temperature or supply voltage fluctuations . . . . 15 db feedback steadies circuit performance.**
- **The Lynch amplifier gives you high gain . . . up to 38 db.**
- **Operates at high ambient temperature . . . the Lynch amplifier works at full power at 140°F. as easily as at 70°F.**
- **Improves audio performance . . . harmonic distortion is only 0.5% at + 10dbm, 300 to 4000 cycles.**

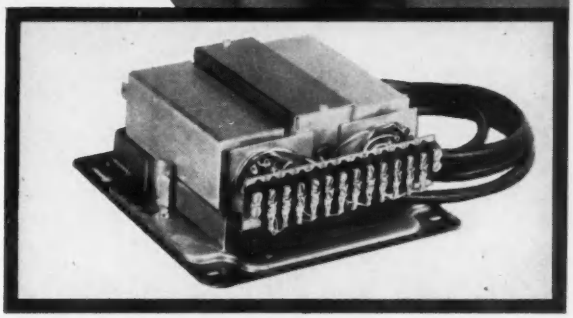
TRIM COSTS ALL ALONG THE LINE

You'll save . . . because the Lynch transistorized repeater eliminates the need for 130 volt power supply. It works on as little as 12 volts, so is easily adapted to the 24 or 48 volt filament supply used by old type vacuum tube amplifiers.

No need to install DC power for smaller installations, since the repeaters are available with a special rectifier unit utilizing 117 volt AC.

You'll cut maintenance costs . . . because the new Lynch Amplifier is designed and manufactured to serve for years without attention. Circuits are printed on tough epoxy fiber-glass. It features a trouble-free standard-size gain control. Diode circuit protects transistors from reverse polarity.

You'll avoid ventilation costs . . . for the transistorized Lynch Amplifier does not generate heat.



AC Power Supply shown between two Amplifiers. Entire assembly may be mounted in #105 apparatus box. Mounting facilities and accessories are manufactured for all types of installations.

Send for New Bulletin—Lynch makes the standout repeater amplifier for remote or central locations. Graybar distributes it nationally. Send today for descriptive bulletin.

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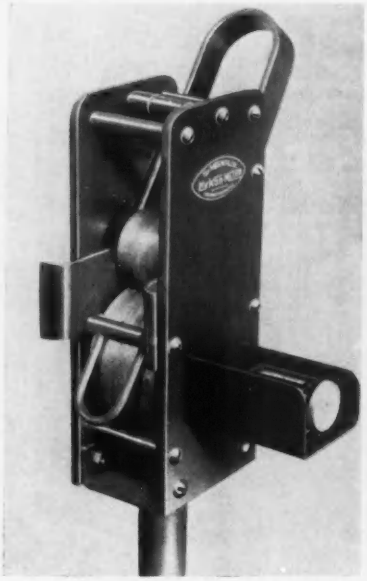


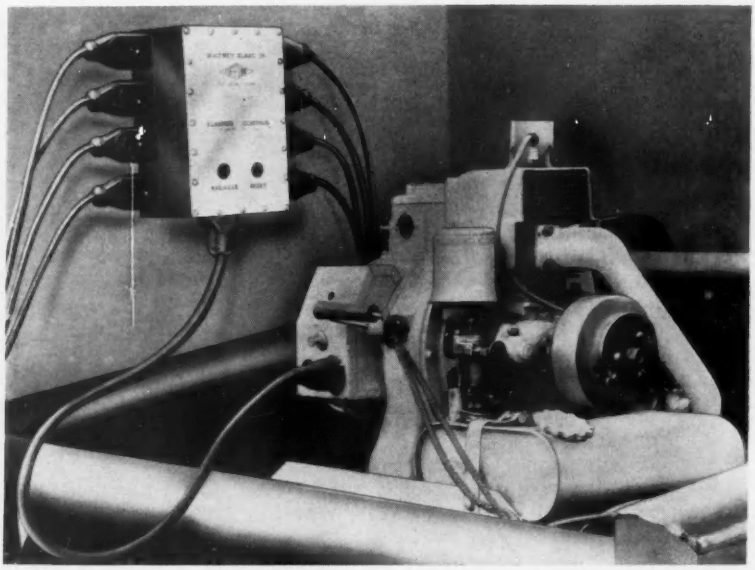
Model HCM cable meter designed for measuring wires and cables up to 2 inches in diameter on the job. Note counter in channel at right. The counter can be easily reset to zero at any time. (Hykon Mfg. Co.)

Typical installation of Tuffline Porta-Watt electrical distribution system for distributing power to various lighting and power operated units. On left is a double-ended flasher head on stand with warning flag. The flasher head has a switch to change light intensity from "bright" to "dim." (Whitney Blake Co.)

two inches in diameter. The wire or cable to be measured passes over an accurately machined steel roller which is connected to a counter.

The counter indicates the measurement in feet and inches from zero to 1000 feet and will continue measuring if desired. Easily read numerals prevent errors in reading the recorded measurement.

Tension is maintained on the wire by two sturdy coiled springs connected to the upper or tension wheel, and a convenient handle permits easy release of this tension to allow the wire or cable to be inserted freely, ready for measuring. Oilless bearings and rugged construction are stated to assure long and trouble-free service. The counter is protected on all sides from accidental damage, yet is easily accessible to reset to zero.



Detail of electrical distribution system showing connection to gasoline driven electric generator on truck bed. Connectors on left are for flood lights and power operated tools and those on right are for flashing lights.

Portable Electrical Distribution System

NEW TYPE portable electrical distribution system has been made available for use on maintenance and construction trucks.

As shown in the illustration, the distribution system consists of neoprene-jacketed portable cords molded to neoprene connectors and protected by circuit breakers in molded neoprene panels. Various combinations of components can be assembled to make systems specifically suited to the operation. Extensions can be added to increase the range of operation.

This type of distribution system makes it possible for installation and maintenance crews to operate flashing lights, flood lights, trouble lights, electric drills, saws, pruners, motor driven blowers, electric heaters, and emergency battery charging power supply for dial equipment.

With electric generators now avail-

Here's how to get

EQUALIZED TENSION

of multiple guys using the

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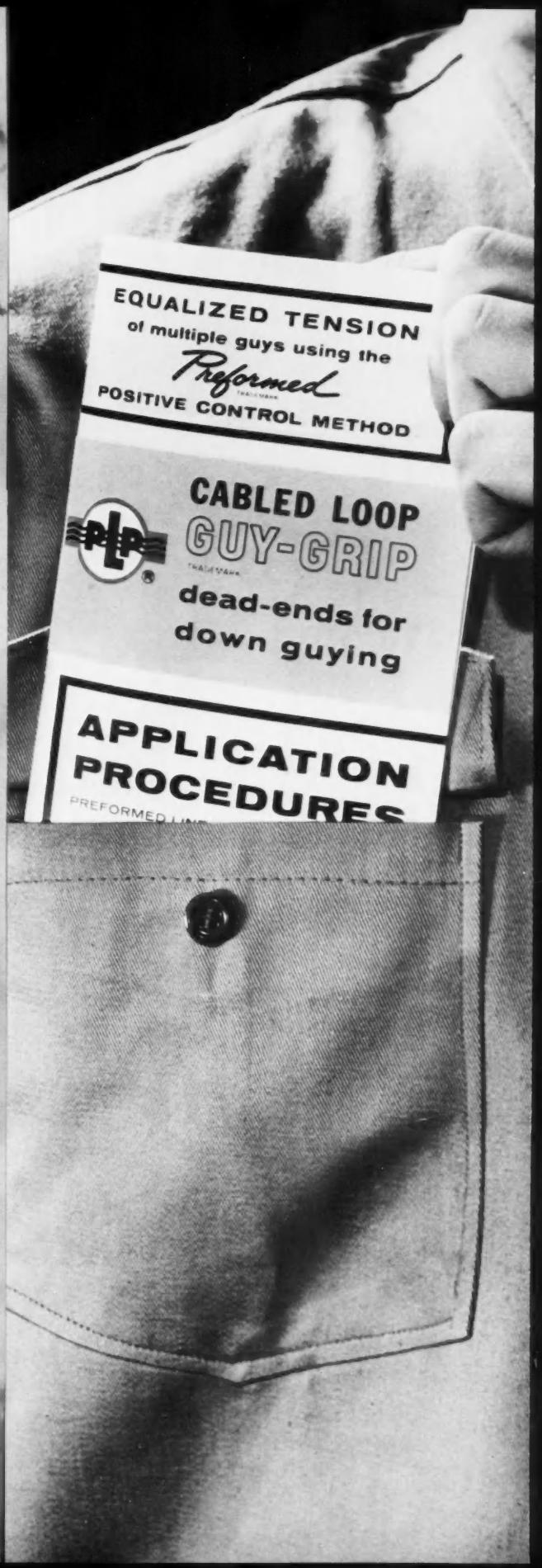

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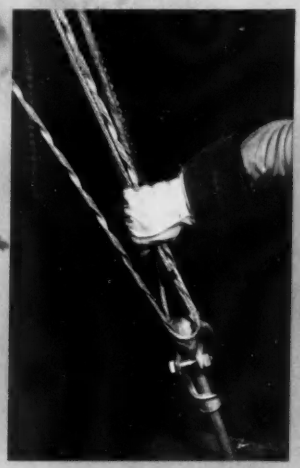
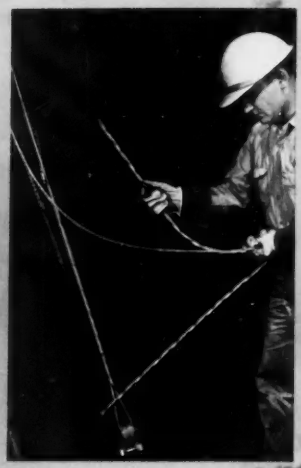


① Tension the new guy until the existing guy goes slightly slack —then cut the strand about 3" above the rod eye, and align the loop of the GUY-GRIP dead-end and the rod eye.



② Wrap one leg of the GUY-GRIP dead-end onto the strand several turns (as far as the *second* cross-over mark.)

③

EASIER with CABLED LOOP GUY-GRIP TRADEMARK dead-ends

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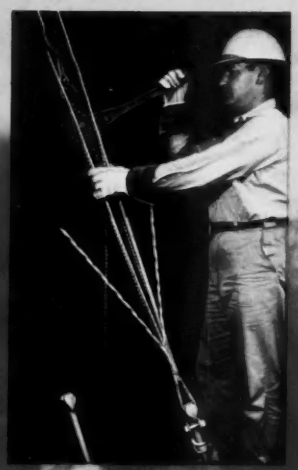
ey steps...

(shown here by a PREFORMED demonstrator)

③ Similarly wrap on the second leg of the GUY-GRIP dead-end as far as the second cross-over mark.



④ Back off the hoist until both guys are even. Complete the application of the GUY-GRIP dead-end to the strand. Repeat these steps for additional guys...

⑤ ...and you're sure the tension is equalized.

CABLED LOOP GUY-GRIP TRADEMARK dead-ends

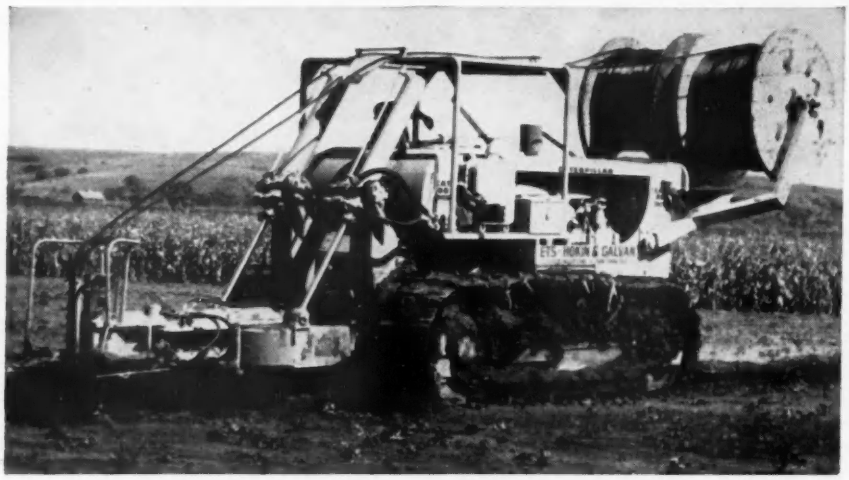
SAFEST, FASTEST, and MOST ECONOMICAL method of multiple or single guying

- Easiest for all joint pole construction.
- Compatible materials.
- Easier guying with *high strength strands* — no strand bending required.
- No concentrated stress on strand.
- Less pole rake required.

The product in this advertisement is manufactured under one or more of the following: U.S. Patent No. 2,691,865 and 2,761,273; other patents pending.

IMPORTANT NEW PRODUCTS

IF YOU HAVE CABLE TO LAY...



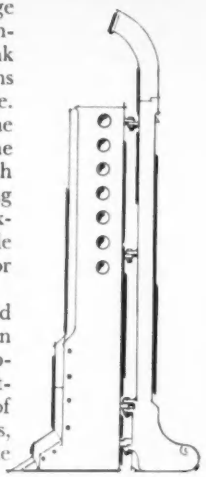
here's the newest, fastest, most profitable method!

In our vast missile base construction program alone, there will be an estimated 100,000 miles of underground cable to be laid. Heretofore this work has been both time-consuming and costly with trenching providing the most accurate method of placing cable in the ground.

Now, the Kelley Products Division of Crutcher, Rolfs, Cummings, Inc., Houston, Texas, introduces a cable laying attachment for all models of Caterpillar track-type Tractors equipped with a Cat hydraulic control unit. Cable is precisely laid at specific depths in a fraction of the time formerly required *and* with 60 to 90 per cent less cost.

The new Kelley Cable Layer puts down any cable up to 3½" O.D. at depths ranging from a 12" minimum with the D4 to a 72" maximum with the D9. The laying shank is far enough behind the tractor to permit unrestricted maneuvering without deviating from the cable line yet close-coupled enough to provide accurate control of depth and position. Vertical movement of the tool bar is attained by two 7" hydraulic cylinders with 48" stroke. Lateral movement, also hydraulically controlled, permits offset laying within 24" of paving or buildings, abutments, shoulders, culverts, bridges, etc. Exacting placement of the shank is attained. This feature also permits steering of the cable-laying shank when turns are made.

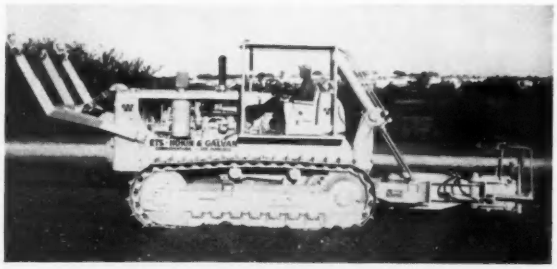
Shanks are available in a variety of cable-matching sizes and widths to reduce drag and possible damage. Shanks are of high-alloy, wear-resistant steel with replaceable leading edge and point. The cable guide or conduit, attached to the ripping shank with hardened pins, swivels and opens for easy removal or insertion of cable. A roller section, at the bottom of the conduit, guides the cable into the channel created by the ripper with the very minimum of drag, bending and friction. Cable pull rarely exceeds 100 lbs. with the Kelley Cable Layer though cable is designed for much higher load.



Cable reel carriers, front-mounted for better balance and visibility, can be custom-engineered for specific applications. Control is by a Cat front-mounted Cable Unit. Full reels of cable, weighing up to 7000 pounds, are automatically unreeled by the drag or pull on the line.

On actual cable-laying contracts, the Kelley Layer averages about a mile of cable each hour. When a Kelley extra-heavy duty Ripper is used in conjunction to open a path for the Cable Layer, production is profitably boosted. The speed and accuracy of the Kelley Cable Layer reduces costs over previously-used methods by 50 to 60%!

Kelley Cable Layers have already proven their ability on several major construction projects. If there is cable to lay on a contract, present or future, contact your Caterpillar Kelley Dealer for more information on the new money-making Kelley Cable Layer.



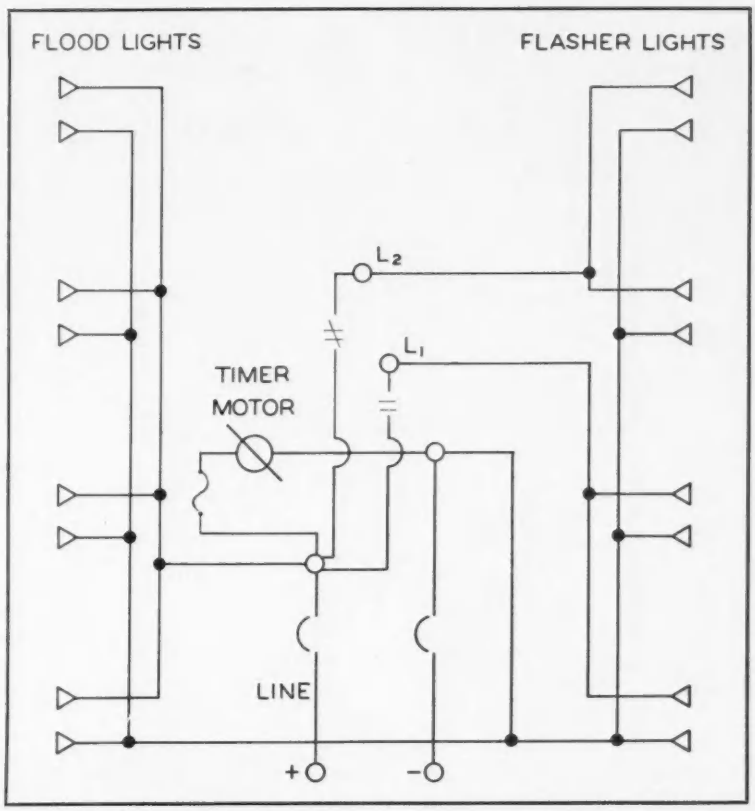
KELLEY PRODUCTS DIVISION
Crutcher-Rolfs-Cummings, Inc.
P.O. BOX 2073
HOUSTON 1, TEXAS

5788

able on trucks, crews can be entirely independent of fixed power sources. The distribution system can be attached to a portable power generator on the truck. Overload protection is provided by circuit breakers in a breaker panel. The breaker panel can be mounted to the truck by means of a set of straps. Two types of breaker panels are available. One type, a 2-pole panel, has four interrupted current circuits for flashing lights and four steady current circuits for tools and equipment. The other type has eight steady current circuits.

The neoprene covering of both cords and connectors is a special compound resistant to fire, sunlight, heat, most chemicals and oil base fluids, abrasion, crushing, cutting and extreme cold. These cords are approved by Underwriters' Laboratories.

The distribution system is safety-engineered to protect the lives of the men using it.



Circuit diagram of flood-flasher breaker panel for distribution system.

New Unit Lifts, Digs and Transports

NEW multi-purpose piece of equipment designed especially for utility company construction and maintenance work is the Pitman Hydra-Lift equipped with a hydraulic digger attachment and installed with a Pitman Utility Body, as shown below. It offers a piece of equipment in a single self-contained unit that can lift loads of all kinds, dig a hole, also transport men, tools, and materials to and from the job.

Pitman Model 60HB Hydra-Lift aerial lift digging pole hole.

Powered by the same hydraulic system that powers the Hydra-Lift itself, the digger attachment handles augers with diameters up to 24". Augers are available with flights of varying lengths, also a variety of boring heads.

With the digger on the swinging boom, the operator can dig a hole at any point within a 180°, 26′ radius of the truck. There is no need to move the truck when a hole is to be dug across a ditch, over a fence or on a slope. The operator can also use the equipment to set a pole without removing the auger attachment.

Equipped with clearance lights, directional signals and a folding seat for personnel, the utility body is a heavy duty body said to be designed for years of service.

— *John S. Reed.*

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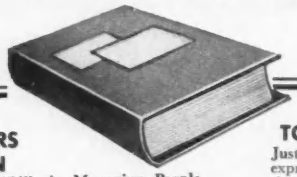

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The Following Articles Will Appear In This Important Issue

"THE BUSINESS CUSTOMER'S REACTION TO A PLANNED SALES APPROACH," by F. Blaine Ward, Director of Sales, General Telephone & Electronics Corp., New York, N. Y.

This exclusive TE&M article sets forth the reasons why General Telephone embarked upon its planned approach to sales, outlines certain market studies, and deals generally with the business customer's situation in relation to his total communications requirements. The article describes: (1) procedures developed and presently used by Gen Tel in connection with the identification and classification of business customer market — this includes sales productivity objectives and planned market coverage procedures; (2) General Telephone's sales personnel, including what a well qualified and adequately trained professional communications salesman must do, and what he must know to successfully discharge his responsibilities to the customer, the company, and himself; (3) the customer's reaction to the planned sales approach; and (4) the results of General's sales program in terms of sales productivity and increased revenues — these results will also be interpreted into understandable comparative terms that should be of considerable interest to the industry.

"HOW YOU GONNA SELL THEM DOWN ON THE FARM?" by Forrest J. Eherenman, General Commercial Supervisor, United Telephone Co. of Indiana, Inc., Warsaw, Ind.

Rural Subscribers represent a virtually untapped market for extension telephones, bells, horns, intercom systems, color instruments, extra listings, and up-grades in service, and this article suggests "it's up to the telephone industry to hit the trail, equip our huckster wagons and visit Farmer Brown where he lives . . ."

announces another important "FIRST"

MARKETING EDITION... JULY 15

"SELL MORE — EARN MORE," by John G. Reynolds, Editor of "Telephone Engineer & Management."

This special TE&M Report describes by text and illustrations the many telephone equipment items that have proved popular with telephone subscribers, and have helped the nation's telephone companies "Sell More" and "Earn More." Prepared from exclusive data obtained from telephone equipment manufacturers, this article accomplishes three goals: (1) it presents a complete pictorial introduction to today's most popular revenue boosters; (2) it presents case history reports of telephone company sales activities that have produced outstanding results; and (3) it presents a complete guide to available information that will help a telephone company do a better job of selling new and additional services.

"THE PLANT MAN'S PART IN THE MARKETING PROGRAM," by John S. Reed, Lincoln (Neb.) Telephone & Telegraph Co.

Today, the plant man's part in the merchandising program has been recognized. Plant workers, particularly those who install telephones and other types of communication equipment, are in almost constant contact with the public. The average installer meets from four to six subscribers daily. From his experience and his many varied contacts, he can visualize the needs for the various types and grades of telephone service, and can make effective sales contacts for services such as extensions and colored telephones. Plant workers, who are diffident about selling telephones, can be encouraged through suitable training and promotional efforts to put efforts into their sales contacts. This article tells how the job can be done.

"THE SMALL COMPANY'S MARKETING JOB," by Bill Corman, Manager, Southland Telephone Co., Atmore, Ala.

Telephone marketing does not stop at the city limits of the big city served by a large telephone company. Today, the small company, with its dial equipment and subscribers who want and are able to pay for more and better telephone service, are finding that the marketing programs that produce added revenues for the large company work equally as well for the small company. This article tells "why" and "how."

"BOOST REVENUES WITH BOOTHS & PAY STATIONS," by C. D. Ehinger, President, Citizens Telephone Co., Decatur, Ind.

Statistics show that the average man, in his lifetime, spends 8,760 hours telephoning — the equivalent of one full year. And if the result-producing ideas presented by this article are followed, man's use of the telephone — particularly at locations away from home and business — may very well increase.

"THE TRAFFIC DEPARTMENT CAN HELP YOUR MERCHANDISING PROGRAM," by D. A. Perigo, General Traffic Supt., West Coast Telephone Co., Everett, Wash.

The experienced marketing manager knows the true value of leads, and this article points to a ready source of good leads — the Traffic Department that is set up to (1) furnish leads for additional directory listings, (2) tie in Service Advisor visits to PBX's, and (3) show need for upgrades or additional lines.

"BOOSTING DIRECTORY REVENUES," by Allan R. Stacey, Vice President, Sunland-Tujunga Telephone Co., Sunland, Calif.

Today's modern telephone directory is not only a guide to the names, addresses, and telephone numbers of a town's telephone subscribers — it is a convenient guide to products and services, used by millions of shoppers. This article tells how a telephone company can boost its revenues by doing a better job of selling additional listings and building up the Yellow Page section, and making the directory a complete guide to the products and services offered by the local merchants and national organizations having representatives in the telephone company's exchange area.

New Products' Showcase

SUPPLIES And EQUIPMENT

By DICK REYNOLDS

Touch-Lite Dial PBX

THE F-50 Touch-Lite Dial PBX from Stromberg-Carlson adds several exclusive features to standard PBX services. The system uses a turret with a space-saving, sound-treating switching cabinet to provide a capacity of 50 lines, 10 trunks and six links.

The exact condition of every line and trunk is immediately apparent by a glance at the light indications of the keys. A feather-light touch on the appropriate key extends, holds or transfers calls. The design lends itself particularly to the part-time attendant who performs other duties at her desk.

The turret, available in beige, green or gray, comes completely wired, fully equipped; a 60-foot cable is supplied. The switching cabinet, taking only 8 square feet of floor space, and mounted on casters for full mobility, is

completely wired for full capacity; includes power supply as part of the basic unit. Stock board contains all common equipment; the line circuits, trunks, links and optional features are ordered to specification, drawn from stock and shipped unassembled; at destination they are jacked in place. *Check NP* 634.

"Handsfree" Telephone

A NEW intercom telephone designed to enable busy executives to make and receive calls without lifting the receiver has just been introduced by Tele-Norm Corporation. Called the

"HandsFree" phone, it features a miniature, fully-transistorized amplification system with volume control which permits conversations to be clearly transmitted and received from anywhere in an office while leaving the executive's hands unencumbered.

Operating principle behind this new phone is that pressing a button actuates its amplification mechanism and the telephone receiver then performs as a microphone. An adjacent loudspeaker unit, connected to the telephone, receives incoming conversation.

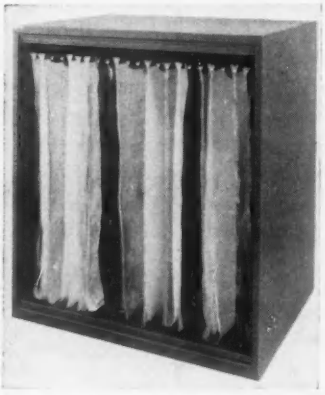
If privacy is desired, lifting the handset cuts out the loudspeaker system and the phone is then used as a conventional instrument. The phone also permits switching from private to amplified conversation on the same connection without the necessity of hanging up and re-dialing. When conversation on the phone has been completed, hanging up the other instrument will actuate a busy signal on the loudspeaker to remind the executive to press the amplifier button again to sever the connection. *Check NP* 635.

Filing Cabinet

A NEW open-type steel filing cabinet for filing engineering drawings, blueprints, and maps, complete with 22 binders, 24″ in length, has just been added to the line of the Dancer "Stikfile" Company.

The cabinet accommodates prints up to 24″ x 36″. The binders hold from 1 to 75 prints each; total capacity, 1650 prints. The cabinet is 36″ wide x 42″ high x 26″ deep and constructed of heavy gauge furniture steel, all welded. Unit is available in four colors.

The cabinet uses ceiling-mounted traverse tracks for hanging of the



specially designed binders. The binder screw heads provide the hanging device — sliding in and out of the traverse track. A label strip extends across the front section of the cabinet directly above the track — assuming indexing ease. *NP* 636.

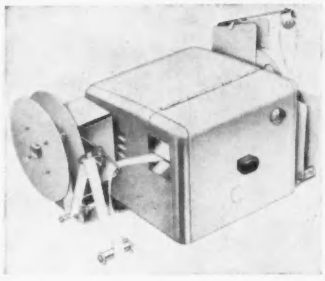
Tape Punch

A NEW multi-magnet tape punch designed to receive parallel-wire input from message communications equipment has been developed by Teletype Corporation.

Designated the Model 28 LARP, this new off-line tape punch set will serve as a "slave" unit in a wide range of data and message communications systems. It is electro-mechan-

ically operated, and provides programmed storage in fully perforated tape.

In data collection systems the LARP records information gathered from many sources into one "com-



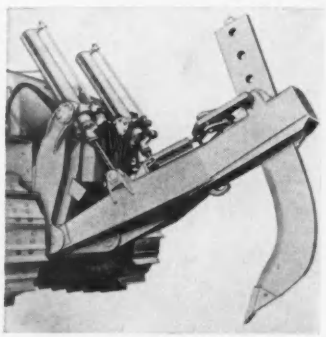
bination" master tape. This tape can be used in communications systems, thus simplifying data relaying.

When attached to business machines, such as calculators, adding machines, electric typewriters, cash registers, and other parallel-wire output devices, the unit yields a record by-product tape.

Operating at 20 characters per second, the new Teletype tape punch is available for 5, 6, 7, or 8 level operation, and will remove the problem of tape preparation from system planning. *Check NP* 637.

Ripper Improvements

IMPROVEMENTS in the design of the Kelley D9 Model C Ripper have greatly increased the service life with the use of higher strength, higher alloy steels it has permitted a more compact, lighter-weight unit, while wear resistance has been substantially



increased. The new model is also easier to install.

Integrally mounted for better maneuverability and more positive control, the ripper, designed for use with the Cat D9 Tractor, can rip most any material including solid rock to depths of 84 inches. Both single and triple shank models are offered with a wide variety of shank types and boots that fit the machine for any material. The welded box-section tool bar is controlled by seven-inch diameter, double-acting cylinders with 48 inch stroke. *Check NP* 638.

Digging Attachment

THE DAVIS T-66's new flush digging attachment gets the job done, and digs flush where clean ditches are not critical.

A special boom mounting bracket sets the digging chain assembly to the extreme left of the shaft. Auger is removed permitting a vertical dirt shield to deflect spoilage to the right of the trench. The flush digging attachment can be installed by one man in minutes, no loss in digging range. Unit trenches 3″ to 4″ wide down to 66″; 12″ wide to 30″ deep and varying widths and depths between.

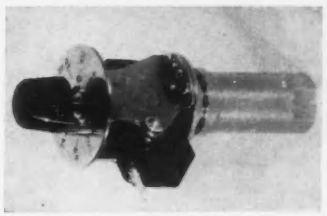
This attachment is particularly suited for digging up to 6″ wide

around small trees and shrubs to be balled and replanted; cutting tenacious hedge-row roots when land grubbing, and trenching flush against structures and appurtenances. *Check NP* 639.

Pressure-Vacuum Control

UNITED ELECTRIC Controls is now offering a sensitive calibrated pressure-vacuum control. Designed without an enclosure for direct incorporation into equipment, the H41 combines high sensitivity and small size.

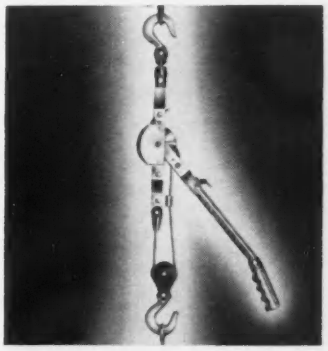
Switch action includes normally open, closed and double throw, and are suitable for ambients up to 180°F.



Standard electrical ratings are 15 and 20 amp 115/230 volts ac. *Check NP* 640.

Manual Hoist-Puller

INCLUSION of stainless steel springs throughout the Power-Pull Manual Hoist-Puller is announced by American Gage & Mfg. Company. The

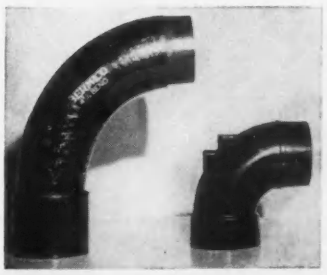


stainless steel springs give protection against rust and resist salt air corrosion. The steel frame and steel parts are all cadmium plated for protection against rusting. Stressed points are all manganese bronze. *Check NP* 641.

Plastic Fittings

BROWN Company's Bermico Division has added a number of popular types and sizes of plastic fittings to its line of bituminized fibre fittings.

Plastic ¼ (right) and ⅛ bends, wyes and tees are now included. The



Different people want different phones

TYPE 90 WALL PHONE
A space-saver with narrow profile design. Special-angle dial is easy to use. Side-mounted handset can't be brushed off hook. Simple installation and maintenance. Choice of 10 colors.

AE makes a phone for every customer need

STARLITE* PHONE
The answer to a modern homemaker's dream. This compact phone is half the size of a regular phone. Choice of six colors. Dial light can be turned from soft to bright or completely off, anytime.

Each person in your area has specific telephone needs. In his kitchen, the chef needs a phone that won't clutter his work area. The housewife, however, wants a phone that adds new color and drama to her home. You can sell both...

To meet the needs of different customers, you must provide many types of phones—standard *and* special. Why? Because it's profitable! The customer who wants a special phone pays extra for the extra service.

Any new customers in your area? Any old ones with new telephone needs? If so, show them the AE phone best suited to their particular needs. Contact your AE representative. He'll be glad to give you full details on our complete line of telephone services and related instruments. Only AE offers 15 different phones to meet different customer needs.

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

**STARLITE is a trademark of Automatic Electric Company*

"Lifeguarded" Bermico fibre fittings, however, are still the most popular. One of the reasons for this is shown in the photograph on page 53. The larger radius of the fibre bend, left, as compared to plastic, right, promotes efficient hydraulic flow of sewage and is a definite advantage in reducing back pressure and potential stoppage. *Check NP* 642.

Jack-Leg Ditch Witch

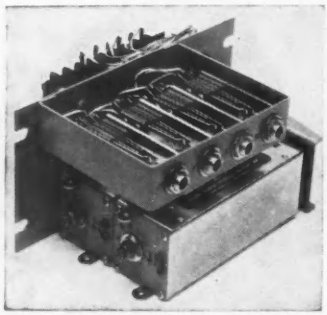
A NEW Jack-Leg Ditch Witch trencher is now available in 9 H. P. and 12 H. P. sizes mounted on rubber tires, from Charles Machine Wks, Inc.

This machine has been developed primarily for use in the installation of underground street lighting cables where it is desirable to trench the cable close to the curb. The jack on

the trencher wheel may be installed on either side of the machine, allowing the spoil to be deposited either on the street side of the trench or on the parking side of the trench, as the customer desires. The jack is so installed on the trencher that one wheel may be lowered as much as 12″, so that unit may be maintained on a vertical plane while the wheels are driving on two different levels. *NP* 643.

Amplifier Mounting

DESIGNED to meet a specific customer need, now in regular production is the Lynch GBO-24-JKTU Amplifier Mounting. With two GB Amplifiers, the mounting is said to up-



grade existing private line service by providing additional gain for long trunk lines connecting a subscriber central office.

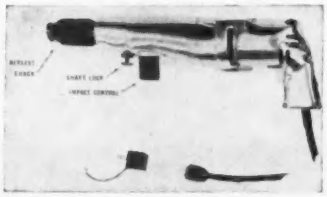
The amplifier provides four jack facilities for testing voice frequency levels at inputs and outputs to the two amplifiers so that the proper gain may be easily adjusted at the time of installation for optimum performance.

The mounting is supplied complete with terminal board using screw type connections and four jacks with tip-ring-cutoff for measuring amplifier gain, sockets and the necessary hardware for mounting of the GB amplifiers. GB amplifiers are not included. *Check NP* 644.

Masonry Drill

A NEW type electric rotary-impact masonry drill to drill holes in concrete, brick and tile has been announced by Roto-Pak, Inc.

The drill was designed for drilling ¼″ to ½″ diameter holes in concrete, stone, hard and soft brick, glazed tile, structural tile, cement



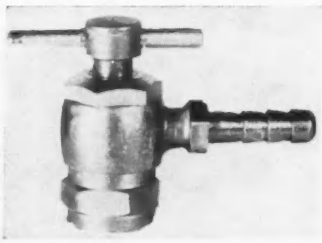
block, terrazzo, steel, wood and plaster. The larger models drill holes up to 4½″ in diameter.

This 9¼ pound masonry drill comes in a steel carrying case, 6″ deep, 7½″ wide, 19″ long, which has an automatic lift drill bit and accessory tray and ample room for a 50 ft. extension cord. *Chcek NP* 645.

Pressure Testing Chuck

S & G MANUFACTURING Corp. has recently announced the availability of a new pressure testing chuck for use with pressure gauges, air flow indicators, or any testing apparatus which requires a pressure tight connection for testing.

This chuck has a swivel nut to screw on the pressure testing valve, together with a 3/16″ hose connec-



tor. In using this item the tee handle is unscrewed out and up before attaching to the valve stem. The hose connects with the gauge on the test unit.

In testing, the tee handle is screwed down and the valve core will be depressed thus letting air out of the cable and into air hose for testing. *Check NP* 646.

NEW PRODUCTS' DEPARTMENT **6-15-61**
Telephone Engineer Publishing Corporation
7720 North Sheridan Road, Chicago 26, Illinois **Date** .....
ATTN: Dick Reynolds

NP 634..... NP 635..... NP 636..... NP 637..... NP 638.....
NP 639..... NP 640..... NP 641..... NP 642..... NP 643.....
NP 644..... NP 645..... NP 646.....

Please send me additional information concerning the following New Products:

NAME ..... POSITION .....
COMPANY .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....
I am a subscriber to TE&M. ☐ Yes ☐ No (check one)

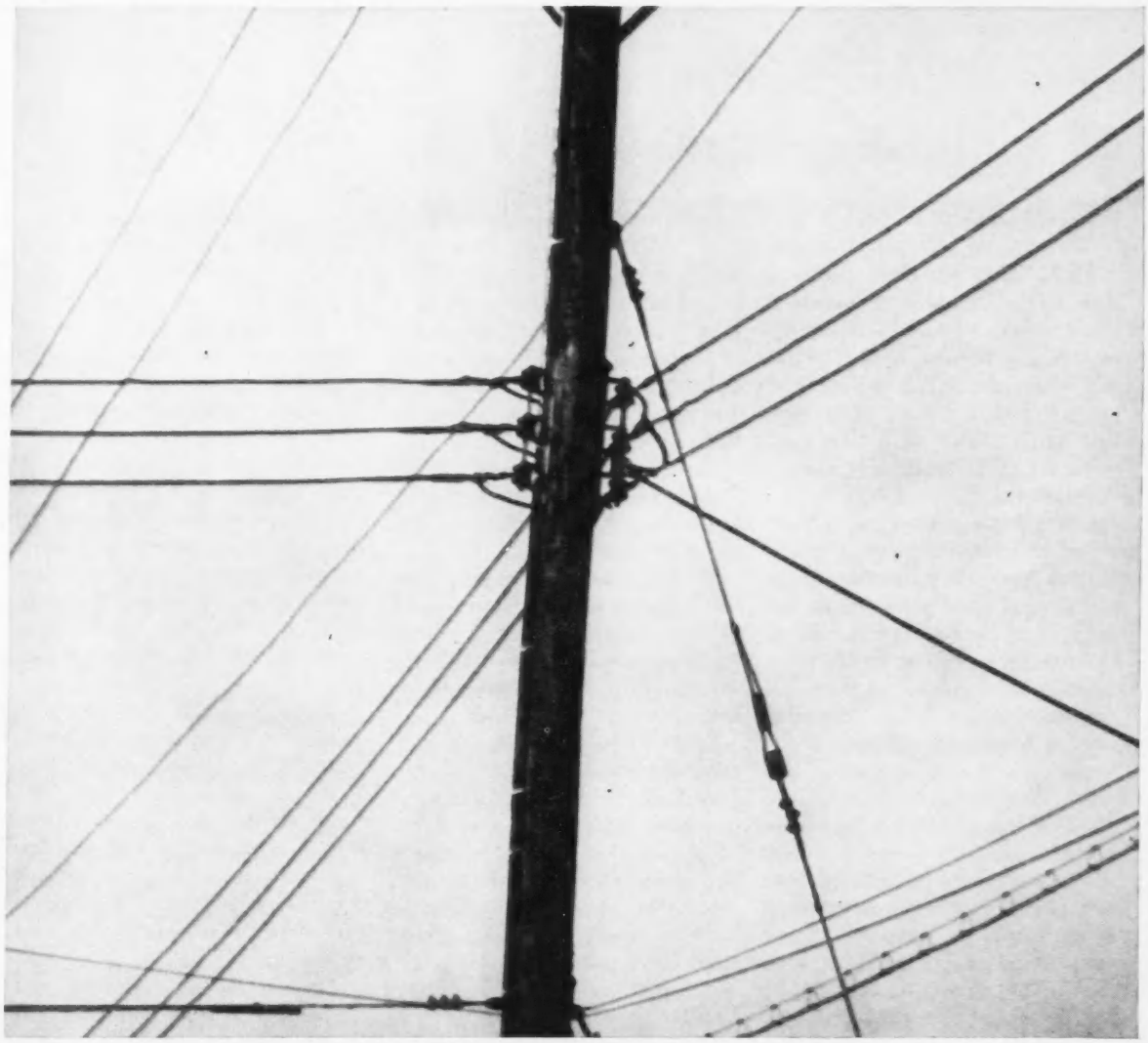
for the right number in line and drop wire insulation...

Monsanto Polyethylene compounds MPE 12 and MPE 11302 help make line and drop wire insulation economical to use and maintain because they impart superior weather-aging characteristics, good abrasion resistance, and resistance to fatigue, insuring long service life. MPE 12 and MPE 11302 contribute to excellent appearance—smooth surface, good gloss, and excellent carbon black dispersion.

Both offer fast extrusion rates. You can be sure of product uniformity because of Monsanto blend to blend uniformity. These resins impart good physical and electrical properties, meeting all applicable A.S.A. and IPCEA specifications.

Monsanto Polyethylene formulations are based on long experience in supplying the specialized needs of the Wire and Cable Industry. MPE 12 and MPE 11302 are but two in Monsanto's range of polyethylene resins developed for wire insulation. For more information, write to Monsanto Chemical Company, Plastics Division, Room 827, Springfield 2, Mass.

Monsanto



Telephone Industry News Highlights

COAST-TO-COAST REPORTS

New "echo suppressor" is designed to solve one of basic problems of space communications . . . Ottertail Tel. Corp. receives safety plaque . . . Ohio Association holds 66th annual meeting . . . Indiana Association holds 41st annual convention . . . Lincoln T & T starts microwave installation.

G T & E Introduces Device Designed To Solve One of Basic Space Communication Problems

AN ELECTRONIC device designed to solve one of the basic problems which would arise in space communications was introduced in Chicago May 22 by scientists of General Telephone & Electronics Corp., New York City.

Known as an "echo suppressor," the device is designed to "silence" echoes which would occur in telephone conversations between widely separated parts of the world, using a space satellite as a relay station. The device was displayed at the Global Communications Symposium (GLOBECOM), sponsored jointly by the American Institute of Electrical Engineers and the Institute of Radio Engineers.

According to Dr. Herbert Trotter, Jr., president of General Telephone & Electronics Laboratories, GT&E research subsidiary, telephone communications employing a satellite system would be unfeasible unless such an echo-reducing device were part of the system. He pointed out that the echo of an individual's voice, while not rendering speech completely unintelligible, would have the "inevitable effect of leading the speaker to enunciate too slowly and jerkily, and would interrupt trains of thought, thus resulting in unsatisfactory or even worthless conversation."

However, he added, the GT&E "echo suppressor" would enable a satellite system to carry "natural telephone conversations."

Dr. Larry Hunter and James Stewart of the GT&E Laboratories operation in Menlo Park, Calif., inventors of the device, described the "echo suppressor" as being capable of operating in two "modes."

In "mode 1" there is complete echo suppression while one person is "doing all the talking" without interruption from the person on the other end of the circuit. An open switch breaks the circuit in the non-used direction of transmission so there is no path by which the echo may return to the talker.

"Mode 2," according to Dr. Hunter and Mr. Stewart, becomes operable in the device — automatically and not noticeable to the talkers — when one person is talking and the other person interrupts. In "mode 2," they stated, "partial echo suppression is achieved by inserting 'loss,' or attenuating, in the transmission paths. If the same amount of 'loss' is inserted in each path, the echo suffers twice as much loss as the signal, and therefore, with a reasonable amount of 'loss,' the echo becomes unnoticeable while both speakers are talking.' In this "mode," the switch must be closed to permit transmission in both directions at the same time. Closing the switch makes it possible for the echo to return to the talker. To reduce the effect of this echo, "loss" is introduced by electronic methods of control.

Emphasizing that the "echo suppressor" still is in the developmental stage, the two scientists said their work with the device indicates that "with partial echo suppression during interruptions and with complete suppression for normal conversational interchange, high quality telephone service by means of satellite systems will be possible."

They said the complex device could be adapted to either low-altitude or

high-altitude satellite systems, and also to long-range land-line systems.

General Telephone & Electronics has recommended to the Federal Communications Commission that the nation's communications companies be authorized to form a single jointly-owned space communications company. Dr. Hunter and Mr. Stewart were members of a team from GT&E Laboratories which undertook a study of satellite communications, and found that echo problems must be studied and solved for both low-orbit and high-orbit systems.

The high-altitude system would have three or four synchronous satellites placed equidistant around the equator, each at an altitude of 22,300 miles and orbiting at the same angular velocity and in the same direction as the earth's rotation. The satellites would be "stationary" in that they would remain over the same point on the earth's surface. Because the satellites would be stationary each ground station with its fixed antenna would constantly be in "line of sight" with one of the satellites. The ground stations would transmit signals to the satellites which in turn would relay the signals to ground receiving stations located throughout the world. At least 20 ground stations would be required for world-wide coverage, although the exact number would depend on the availability of suitable ground communications in various sections of the world.

The lower-altitude system would use 40 or more satellites launched into random polar orbits about 3,000 miles high. Because they would be in random orbits not paralleling the direction of the earth's rotation, the individual low-altitude satellites would not be in constant contact with any single ground station. As a satellite passed out of sight of a ground station which was transmitting via the satellite to another ground station also in line of sight of the satellite, both stations would rotate heir antenna to establish contact with an oncoming satellite. This switching process would require equipment capable of solving mechanical and electrical problems not present in a high-altitude system with its fixed line of sight between satellite and ground stations.

Ottertail Tel. Co. Receives Safety Plaque

ONE OF THE nation's most enviable small plant safety records is improving daily as employes of the East Ottertail Telephone Co. of Perham, Minn., carefully attend to their business without lost-time accidents.

ROYALE B. ARVIG (left), President of East Ottertail (Minn.) Telephone Co. accepts safety plaque from V. L. RUSHFELDT, Minneapolis safety engineer for Employers Mutuals of Wausau.

The company has not lost a man-hour of work through an on-the-job accident since Sept. 1, 1954 and has accumulated a total of more than half a million man-hours worked during this period.

In recent ceremonies at Perham, company president Royale B. Arvig accepted a citation from Employers Mutuals of Wausau in behalf of his 40 employes. The Wisconsin insurance firm is a pioneer in workmen's compensation insurance and industrial safety.

Arvig's company has 5,000 subscribers in 50 townships, which reflects a growth of more than 1300 per cent since Arvig assumed active direction 10 years ago.

S. W. Bell Names Schultz To Succeed Sam Rich

ARVAL A. SCHULTZ has been named Independent company relations manager in Oklahoma for Southwestern Bell Telephone Co. He succeeds Sam C. Rich who has retired after 44 years service with the company.

Schultz joined Southwestern Bell's accounting department at Kansas City in 1936 and transferred to the plant department in St. Louis the following year. He later worked in the engineering department at Dallas and St. Louis. He has been Independent company cost study engineer in St. Louis since 1955.

Rich had been Independent company relations manager in Oklahoma since 1946. He began his telephone career with Southwestern Bell's plant department in Oklahoma City in 1917. Later he took military leave to serve with the U. S. Army Air Corps during World War I. Following his return to the company in 1920, Rich was manager at Duncan, Oklahoma and district manager at Enid and Tulsa. He is a past treasurer of the Oklahoma Telephone Association.

Bell of Canada Announces Top Management Changes

T. W. EADIE, president, The Bell Telephone Company of Canada, Montreal, has announced that effective July 1, J. R. Logan, vice-president and treasurer, becomes vice-president, and R. C. Scrivener, director of business development, becomes vice-president (finance). Scrivener succeeds R. H. Keefler who becomes president, Northern Electric Co.

Scrivener joined Bell Telephone in 1937 on graduation from the University of Toronto. He held a number of administrative positions in the operating departments and staff groups of the company until his appointment as director of business development in February, 1960.

Logan joined the company in 1909 in the treasury department. In his new position he will assist the president in a consultative capacity.

W. C. Macpherson succeeds Scrivener as director of business development. Born at Prescott, Ont., he has worked in many communities in Ontario and Quebec.

W. C. Corbett, assistant treasurer-administration, becomes treasurer, effective July 1.

Officers and directors of the Ohio Independent Telephone Association are shown at the reorganizational meeting of the board on the concluding day of the 66th Annual Convention. Seated, left to right, are HOWARD WRIGHT, Ashtabula Telephone Co., newly elected president; COLONEL WILLIAM C. HENRY, Northern Ohio Telephone Co., Bellevue; J. D. PARKS, Kenton Telephone Co.; COLONEL DAVID McC. KELL, Chillicothe Telephone Co.; CLARENCE A. BESWICK, Geneva Telephone Co.; RICHARD R. WALTZ, Delta Home Telephone Co.; COYNE C. BLOOM, Sycamore Telephone Co.; and H. F. CLAPPER, Ohio Telephone Service Co., Greenville. Standing, left to right, are ROBERT D. GOTT, Wellington Telephone Co., immediate past president; JAMES C. HAGEMAN, Lorain Telephone Co.; WELDON W. CASE, Mid-Continent Telephone Corp., Elyria; CLARE E. WILLIAMS, General Telephone Co. of Ohio, Marion; ROBERT P. KAUFMAN, Continental Telephone Co.; JAMES I. HUNT, Middlefield Home Telephone Co.; and DANIEL W. DeHAYES, O. I. T. A. executive vice president and secretary-treasurer. Directors who were not present when the photo was taken were Ralph F. Mateer, Warren Telephone Co.; George B. Quatman, Telephone Services, Inc., Lima, newly elected vice pres.; Raymond J. Maxwell, Mansfield Tel. Co.; and J. Warren Safford, Troy-Tipp Tel., Inc.

200,000th Telephone Installed By Carolina Tel. & Tel. Co.

THE 200,000th telephone of Carolina Tel. & Tel. Co. was installed last month in the Washington, N. C. offices of Dr. Robert E. Sandy. The first call on the newly installed telephone was made by Dr. Sandy who dialed North Carolina Utilities Commission Chairman Harry T. Westcott in Raleigh.

Chairman Westcott congratulated the telephone company and said, "It is particularly interesting to me that this 200,000th telephone should be installed in Washington — the location of the first direct distance dialing installation in North Carolina."

Carolina Telephone Vice President J. F. Havens, who witnessed the installation, said that this event marked a significant milestone in the history of eastern North Carolina communications. He noted that fifty-two years were required for the company to attain its 100,00th telephone (installed at Rocky Mount in 1952); while only nine years were required for the company to gain its second 100,000 telephones.

Guests of Dr. Sandy during the installation, in addition to Havens, were: Carolina Telephone Director John C. Rodman, Washington; District Commercial Manager W. E. Marshall, New Bern; Washington Manager B. S. Oliver; Public Relations Manager P. J. Long, Tarboro; and Supervisor of Information and Advertising Harold N. Simpson.

Ohio Association Holds 66th Annual Meeting: Howard Wright Elected OITA President

HOWARD WRIGHT, a forty-five year veteran in the telephone business, was elected president of the Ohio Independent Telephone Association during the 66th Annual Convention of the Ohio Association.

Wright, who is executive vice president of the Ashtabula (Ohio) Telephone Co., is the association's twenty-third president. He succeeded Robert D. Gott, secretary-treasurer, Wellington Telephone Co.

Wright, a native of Ashtabula, has worked for the Ashtabula Telephone company all his life, except for five months' employment with General Electric. His son, James, is now plant engineer at the Ashtabula Co.

Elected as vice president for the coming year was George B. Quatman, president, Telephone Services, Inc., Lima. Quatman, who is a pioneer in Ohio Independent telephony, is noted for his philanthropy and his current interest in the restoration of a religious shrine in Turkey.

Daniel W. DeHayes, who has served as executive vice president and secretary-treasurer since 1953, was re-elected to both posts. DeHayes is a member of the Columbus Board of Education and is a member of the Governor's Commission for awarding State of Ohio scholarships.

Directors re-elected for a three-year term were: Coyne C. Bloom,

Sycamore Telephone Co.; James C. Hageman, Lorain Telephone Co.; James I. Hunt, Home Telephone Co., Middlefield; David McC. McKell, Chillicothe Telephone Co.; J. D. Parks, Kenton Telephone Co.; and Clare E. Williams, General Telephone Co. of Ohio, Marion.

Robert P. Kaufman, vice president, Continental Telephone Co., Continental, was elected to fill a vacancy on the Board. Kaufman's term will expire in 1962.

"Telephony's Idea Fair" was the unique theme for the 66th Annual Convention and Trade Show of the Ohio Independent Telephone Association, when it convened at the Deshler Hilton Hotel. Robert D. Gott, secretary-treasurer of the Wellington Telephone Co. and association president, presided over the highly successful two-day meeting.

Seven hundred and thirty-seven telephone men and women registered for the annual meeting, setting an all-time attendance record. Thirty-three exhibitors displayed at one of the most outstanding trade shows in OITA's convention experience. The exhibit area was jammed each day prior to and after the program sessions for the telephone industry.

The first official function of the convention was the keynote luncheon. Weldon W. Case, president, Mid-Continent Telephone Corp., Elyria, had the pleasure of introducing his personal friend, James D. McLean, president, General Dynamics | Electronics, Rochester, N. Y., as the keynote speaker.

McLean, who chose "The Fourth Phase of Telephony" as his topic, forecast that a day will come when long distance calls won't cost any extra, and a telephone "will call you with a gentle chirp instead of a raucous bell." He enthusiastically described "The Fourth Phase of Telephony" as an era of electronic marvels, including completely electronic switchboards, communications satellites, and miniaturization of equipment.

McLean challenged the convention delegates to meet the growing demands of the public for better and more elaborate services, and warned them of a new population explosion coming in the sixties.

Two "Community Service" awards were presented at the OITA 66th Annual Convention to companies who had promoted and fostered an outstanding public relations activity during the past year. Shown above, on the left, G. THOMAS WINN, public relations director, General Telephone Co. of Ohio, Marion, holds his company's Class A award. ROBERT P. KAUFMAN, vice president, Continental Telephone So., Continental, holds his company's Class B award.

Immediately following McLean's luncheon message, the regular afternoon program began in the hotel's Hall of Mirrors. Edward Kenealy, chairman, Public Utilities Commission of Ohio, Columbus, extended cordial greetings to the assembled delegates.

Joseph A. Richardson, General manager, Ford Motor Co. Assembly Plant, Mahwah, N. J., analyzed the problems as well as the advantages of "Industrial and Community Development." Richardson, formerly General Manager of the Lorain (Ohio) Ford Plant, has taken the lead in industrial and community development in several cities where he has resided and spoke from his own experiences.

Richardson challenged the telephone industry to be aware of the pitfalls as well as the benefits of bringing new industries to a given community. He urged telephone people to be active participants on community development committees.

James C. Hageman, president, Lorain Telephone Company, and a past president of the OITA and presently a member of its board of directors, introduced Richardson.

Over 500 telephone company representatives and guests renewed old acquaintances at a "Buckeye Hoedown" Hospitality Party. A county fair motif was prominent in the ballroom decorations with crepe paper streamers and balloons transforming the room into a midway.

Dressed in plaid shirts, jeans and straw hats, the Convention Hospitality Committee members were posted at the ballroom entrances and welcomed everyone to the party. Those serving on the Hospitality Committee were: Varner J. Gaskins, Chillicothe Telephone Co.; W. B. Hardy, Chardon Telephone Co.; George Knapic, Warren Telephone Co.; and Ed T. Loughridge, Mansfield Telephone Co.

There was a weight guesser and an organ grinder with a monkey to entertain the "conventioneers" as they mingled through the crowd. Everyone seemed to have a jolly time as evidenced by the warm handshakes and pats on the back as old friends met. Thirty-nine O. I. T. A. associate mem-

bers sponsored the social function.

On the convention's second day, 60 members of the Buckeye State Chapter of the Independent Telephone Pioneer Association met for a "country-style" breakfast. Following "wake-up" coffee and bacon and eggs, the Pioneers were given some helpful hints on living in these strenuous times by Walter Seifert of Farmer, Nichols & Seifert, Columbus public relations firm.

Mrs. Ruth Dutch, Commercial Manager, Elyria Telephone Co., and Buckeye State Chapter president, presided over the annual business meeting. New officers elected to guide the chapter through the coming year are: H. M. DeGroff, Troy-Tipp Telephone, Inc., Troy, president; Robert Shelton, Commonwealth Telephone Co. of Ohio, Athens, vice president; and Galen Klepinger, Troy-Tipp Telephone, Inc., secretary-treasurer.

New board members elected for one year terms were: J. Warren Safford, Troy-Tipp Telephone, Inc.; Paul Kaufman, Northern Ohio Telephone Company, Bellevue; and Vernon V. Hershey, Warren Telephone Co.

Dr. G. Herbert True, vice president, Visual Research, Inc., Chicago, Ill., one of the most captivating public speakers touring the country at this time, spellbound his audience with an idea-packed, mentally-motivating presentation Wednesday morning. Dr. True's topic, "The Importance of Ideas," tied in perfectly with the "Idea Fair" theme of the entire convention.

JAMES D. McLEAN, president, General Dynamics | Electronics, Rochester, N. Y., was the OITA's 66th Annual Convention keynote speaker.

Wednesday noon the Annual Awards Luncheon, one of the highlights of O. I. T. A. conventions, was held. Three classifications of awards were presented.

The "Seventh Annual Beyond the Call" award was presented by President Gott to Willard Jenkins, a cable splicer for General Telephone Co. of Ohio, Celina, who courageously helped rescue five men from an overturned automobile, submerged in nearly six feet of water in Grand Lake, Mercer County, Ohio, last August. The award was a silver tray properly engraved to commemorate the event.

"Community Service" awards were presented to two companies which had promoted and fostered an outstanding public relations activity during 1960. The Class A award was presented to General Telephone Co. of Ohio, and was accepted by G. Thomas Winn, public relations director, Marion. The Class B award was presented to Continental Telephone Co., Continental, and was accepted by Robert P. Kaufman, vice president.

Two categories of Safety Awards were presented by J. Maynard Dickerson, chairman, Industrial Commission of Ohio, in behalf of the Commission's Division of Safety and Hygiene.

The first category of Safety Awards was presented in a group classification to organizations having the best safety record based on the number of man hours of labor exposed to accidents. The Group Safety Award winners were Northern Ohio Telephone Co., Bellevue; Lorain Telephone Co.; Ashtabula Telephone Company; Kenton Telephone Co.; New Knoxville Telephone Co.; Malinta Mutual Telephone Co., Inc., and Ottoville Mutual Telephone Co.

The second category, the 100% awards, was presented to companies which had no accidents during 1960. This distinguished 100% group included Lorain Telephone Co.; Ashtabula Telephone Co.; Troy-Tipp Tele-

Please turn to page 66

Along the midway at "Buckeye Hoedown," "Tony" and his pet monkey "Chris" entertain delegates and guests at the Ohio Hospitality Party as they circulate through the crowd and perform tricks.

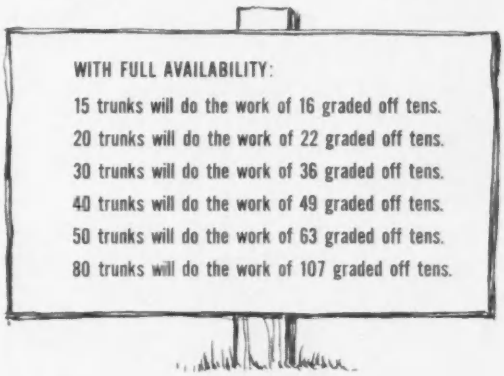
IS HIGHER TRUNK AVAILABILITY IMPORTANT?

Obviously, trunk availability is a determining factor in traffic capacity.

Conversely, if a smaller number of trunks can handle an equivalent amount of traffic, the savings in dollars and cents is considerable.

North Electric Crossbar switching equipment is handling more traffic over fewer trunks for many Operating Companies right now—and can do the same for you.

For example, in one instance*, North Electric Crossbar is handling the same volume of traffic over 60 trunks as was formerly handled over 90... and of course, there is no "hunting time" problem.

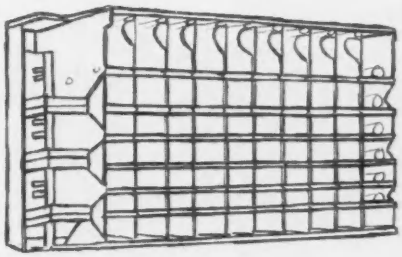

WITH FULL AVAILABILITY:
15 trunks will do the work of 16 graded off tens.
20 trunks will do the work of 22 graded off tens.
30 trunks will do the work of 36 graded off tens.
40 trunks will do the work of 49 graded off tens.
50 trunks will do the work of 63 graded off tens.
80 trunks will do the work of 107 graded off tens.

Since North Electric Crossbar is not limited to trunk availability by grading by tens, it becomes immediately obvious that this can be advantageous for you in:

- **Greater trunk availability**
- **Greater traffic capacity over existing trunks**
- **A substantial savings in cost of adding unnecessary trunking facilities**

These advantages are real and are significant, not only in light of your service today, but even more so in relationship to the demands that will be put upon your service in the immediate future.

If you believe, as we do, that there can be no compromise with efficiency of service in the telephone industry—then you need North Electric Crossbar—the most advanced switching equipment available to the Independent Telephone Industry from...



*Specific details on request

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

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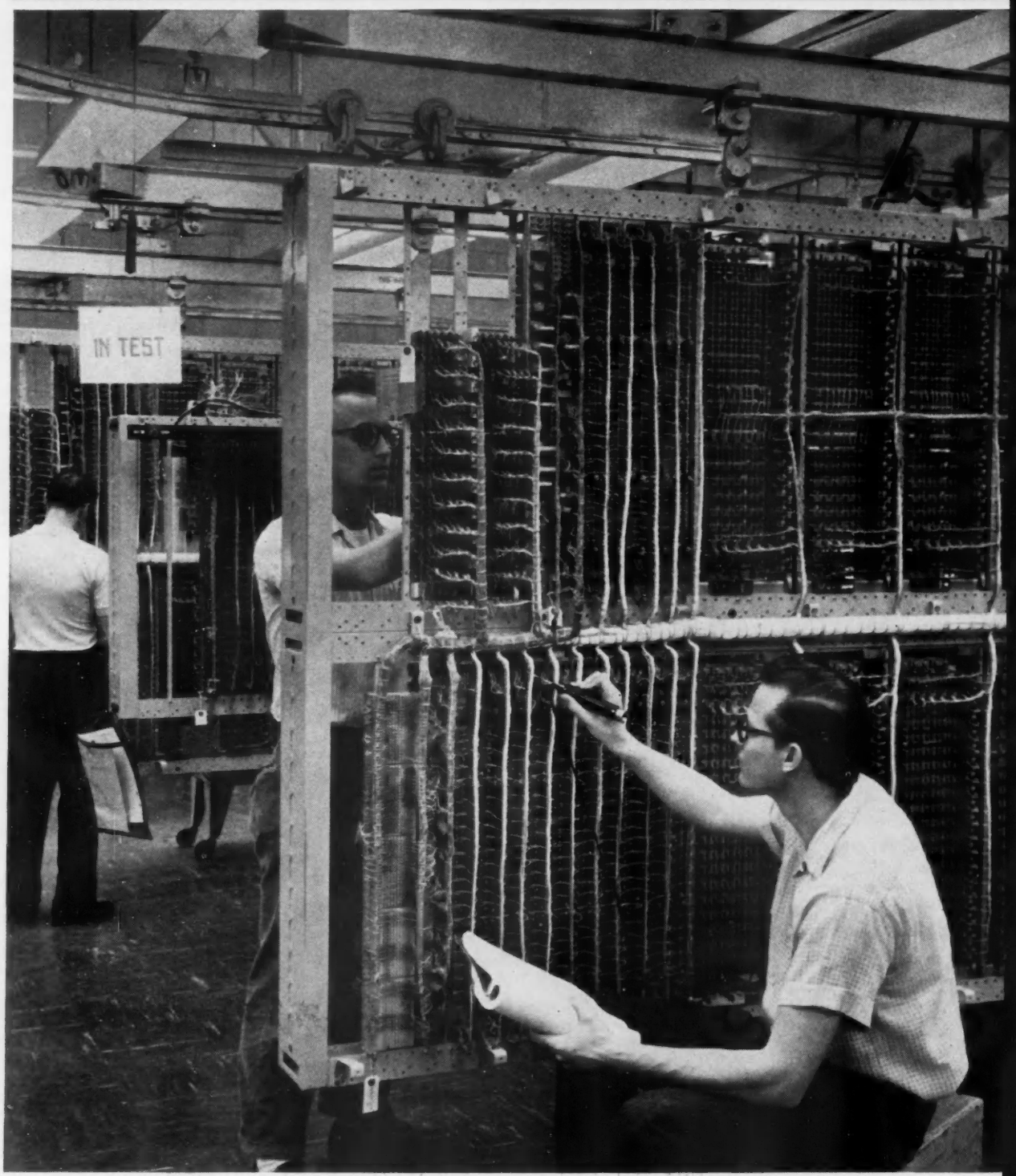
No. 5 in a series of factual presentations on North Electric Crossbar.

WESTERN ELECTRIC AND



TELEPHONE CROSSBAR SWITCHING FRAMES the main product of Western Electric's new Oklahoma City manufacturing plant, are shown undergoing process control checks. In 1961, Western Electric will make nearly 13,000 of these crossbar frames for shipment to Bell Telephone central offices throughout the United States.

OKLAHOMA CITY

Adding further impetus to the growth of one of America's fastest growing cities, Western Electric's new manufacturing plant in Oklahoma City — with over 30 acres under one roof — is already producing important telephone equipment for the Bell Telephone System.

Oklahoma City — with an exploding population now numbering over a third of a million, and long-known as a wheat, cattle, and oil center — is now in dramatic transition from an agricultural to an industrial economy.

An important step in this transition is Western Electric's modern manufacturing plant in Oklahoma's capital city. Its principal "products" are the workhorses of the Bell Telephone System — intricate crossbar frames used by Bell's central telephone offices to automatically switch and channel the bulk of the nation's telephone calls.

Oklahoma City already feels the benefits of this year-old plant: jobs for 3,000 Oklahomans, a $14 million payroll, and $4 million paid to more than 300 local suppliers.

Western Electric has found its Oklahoma employees capable workers and excellent citizens who share wholeheartedly in the city's civic and social life. We're proud to be in Oklahoma City, and we're confident of a bright future in the great, growing Sooner State.

Besides Oklahoma City, Western Electric has 12 other principal manufacturing locations, where we make hundreds of different products for the Bell System and for the Government, mainly for defense. Last year we purchased over a billion dollars' worth of raw materials, products and services from our more than 35,000 suppliers located in every State of the Union. Of these, 90% are "small businesses." The things we make and buy are distributed to the Bell telephone companies through Western Electric distribution centers located in 33 cities.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

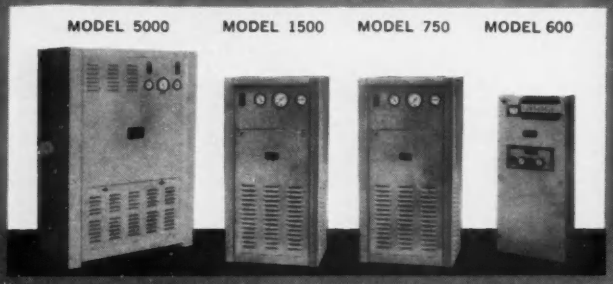
A PUBLISHER'S WELCOME from E. K. Gaylord of the Oklahoma Times: "We're very happy to have Western Electric here in Oklahoma City . . . it affords outstanding local job opportunities to our college students who have majored in science and technology."

WESTERN ELECTRIC BUYER, Bob Peregrin (left), examines a pair of special pliers with Otto Hart, President of Hart Industrial Supply Co., one of many small businesses in Oklahoma which furnish Western with a wide range of tools, parts, and machinery.

"SHOOTING" THE FAMILY on the grounds of the Oklahoma State Capitol Building is Western Electric stock maintenance clerk, Morris Dees. His willing subjects are wife Mary (who also works for Western Electric) and children John and Lana Lu. Oil derricks furnish a unique but characteristic backdrop.

GOOD SPORT Jerry Irby, Western Electric output tracer, uses sign language to interpret the fine art of bowling to local deaf-mute citizens. Jerry is typical of many W.E. employees who devote a great deal of their spare time to community affairs work.

a PUREGAS Pressure System for all Telephone Exchanges



PUREGAS refrigeration type Air Dryers are available with capacities to pressurize aerial and underground cables in any size Telephone company, from single cables to the largest central offices.

PUREGAS Air Dryers are fully automatic, complete units — each meticulously tested before delivery.

FEATURES

Capacity ..... 600 to 5000 cu. ft.
Delivered Air Humidity ..... under 2% at 70°F.
Delivered Air Pressure ..... 0 to 15 psig, adjustable
Automatic Safety Controls:
Adjustable high and low pressure alarm.
High humidity alarm (5% at 70°F.).
Thermal overload protection on switches and motors.

These Air Dryers are simple to install and relatively maintenance free because they have only one moving part in the airdrying circuit — the refrigeration compressor.

Air Dryers, Meter Panels and a full line of accessories can be ordered direct from your local distributor.

Write for complete details

- *Data Sheets on Model 600, 750, 1500, and 5000 Air Dryers*
- *"Why Cables Should Be Pressurized"*
- *Cost Comparison . . . Air Dryers vs. Nitrogen*
- *"Meter Panels for Continuous Feed Pressure Systems"*

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phone, Inc.; Kenton Telephone Co.; Conneaut Telephone Co.; Orwell Telephone Co.; Community Telephone Co.; Delta Home Telephone Co.; New Knoxville Telephone Co.; Sycamore Telephone Co.; Kingsville Telephone Co.; Centerville Telephone Co.; Harlan Telephone Co.; Farmer's Mutual Telephone Co.; Nova Telephone Co.; Bascom Mutual Telephone Co.; and New Bavaria Telephone Co.

Ohio telephone people were honored to have as their Annual Awards Luncheon speaker, Clifford C. Pearce, president, United States Independent Telephone Association. "The demand for communications service is just beginning," according to Pearce, who is also president of the Farmers' Mutual Telephone Co., Riceville, Ia. Pearce urged his fellow telephone company members to start planning *now* for satellite communications and other fast-breaking developments in telephony.

"Dial-an-appliance household equipment may soon be on the market," he said. "This will enable the housewife who is downtown shopping to start dinner before she returns home. She simply telephones her home and, by dialing additional digits, turns on the oven and starts the roast to cooking. This is one time where care must be used in dialing. The wrong digit may open the garage door, start the remote control lawn mower, or give the baby a bath."

Wednesday afternoon, four "Trading Posts of Ideas," covering the fields of Accounting, Commercial-Public Relations, Plant-Equipment, and Traffic, were conducted concurrently. After the formal presentations in each session, delegates submitted questions for discussion. Participants on the four panels and their topics were:

Accounting Trading Post of Ideas: — Harold Rushton, auditor, Ashtabula Telephone Co., presiding; Paul Hampton, chief engineer, Public Utilities Commission of Ohio, Columbus; and T. J. Collum, director of budgets, Nationwide Insurance Companies, Columbus.

Commercial-Public Relations Trading Post of Ideas: — Joseph Yeager,

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LOADING COIL ELECTRICAL PROPERTIES

Type of Coil	CHARACTERISTICS							
	Nominal Inductance (MH)	Inductance Unbalance (%) Maximum	D.C. Resistance (Ohms) Maximum	D.C. Resistance Unbalance (Ohms) Maximum	Effective Resistance (Ohms) Maximum	Dielectric Strength Between Winding (D.C. Volts) Minimum	Insulation Resistance (Megohms) Minimum	Cross Talk Loss Between Adjacent Coils (Decibles)
613-344	44	.5	5.4	.2	7.1	10,000	10,000	90 or Greater
614-343	88	.5	9.0	.2	11.0	10,000	10,000	90 or Greater

COOK ELECTRIC Company

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commercial manager, Telephone Services, Inc., Lima, presiding; Jack Boyd, marketing and sales manager, General Telephone Co. of Ohio, Marion; and Bernard A. Deitzer, manager, Sales Management Development, Nationwide Insurance Co., Columbus.

Plant-Equipment Trading Post of Ideas: — John Murdak, chief engineer, Elyria Telephone Co., presiding; Joseph Baude, director of engineering training, North Electric Co., Galion; Harold G. Wirtz, sales representative, Buckeye Telephone & Supply Co., Findlay; and the movie "Signal 30" shown by the Ohio Department of Highway Safety.

Traffic Trading Post of Ideas: — Mrs. Florence Gaskalla, chief operator, Elyria Telephone Co., presiding; Dr. Paul Carmack, department of speech, The Ohio State University, Columbus; Miss Mary Smith and Mrs. Mildred Kosanovic, both of the Traffic Department, Ohio Bell Telephone Co., Columbus, participated with Dr. Carmack on a panel where tone of service problems were discussed.

The Annual Banquet, Wednesday evening, was held in the Grand Ballroom where a "country-style" atmosphere was in evidence in the ballroom decorations, the costumes of the delegates, and the entertainment which followed the dinner.

Frank T. Quatman, assistant to the president, Telephone Services, Inc., Lima, served as Master of Ceremonies. Quatman, who served as MC last year, was asked to give a repeat performance this year. In his most capable manner he introduced as the evening's entertainment, the Kentucky Briarhoppers, professional square dancers of WLW-TV's Midwestern Hayride, Cincinnati; "Miss Ohio" — Alice Ann McClain, an employe of General Telephone Co. of Ohio, Marion, who sang three numbers; and Chet Guffey, Columbus auctioneer, who conducted an old-fashioned country auction where the high bidders purchased Ohio-made products. Bingo games concluded the evening's program and the five lucky winners each took home a bushel basket of groceries.

Sergeants-at-Arms, who helped with many of the convention details while the two-day meeting was in progress were Charles Bowen, General Telephone Co. of Ohio, Celina; Richard Komjati, Northern Ohio Telephone Co., Medina; Carl F. Olson, Lorain Telephone Co.; and William D. Watson, Kenton Telephone Co.

The wives of Ohio telephone company executives enjoyed a dessert-tea Tuesday afternoon while their husbands were attending business sessions. Mrs. Mary Gilliam, reservations supervisor, Trans World Airlines, Inc., Columbus, demonstrated to the ladies the best way to pack a travel wardrobe into a suitcase. She used the latest spring fashions for travel in her demonstration.

The ladies' committee in charge of arrangement for this lovely spring part were Mrs. Robert D. Gott, Wellington, chairman, assisted by Mrs. Ted Case, Hudson, Mrs. Richard N. Cole, Marion, and Mrs. Joseph Quatman, Lima.

Indiana Convention Speakers Emphasize Need For "Gearing" To New Communications Era

By NORMAN KOLIN
Editor, "Indiana General News."

THE ACCENT was on the future at the 41st annual convention of the Indiana Telephone Association held May 10-11 at the Claypool Hotel, Indianapolis.

Every major speaker emphasized the need for gearing to a new era in which the telephone industry would have to use its experience and technological know-how to become a full-blown communications industry, if it is to survive the challenge of the sixties.

Clifford C. Pearce, Riceville, Iowa, president of the United States Independent Telephone Association, told assembled telephone company representatives at the annual banquet that it is becoming more and more important for each Independent company to be active in its state and national organization.

"We are helpless as individuals and must work in close harmony to cope with the complex problems that face us," he said. "Each of us operates a segment of a highly complicated communications machine and

Members of this Indiana Convention group are (l. to r.): ITA Director HUGH A. BARNHART, Rochester; USITA President CLIFFORD C. PEARCE, Riceville, Ia.; ITA President L. H. MEYER; and Governor MATTHEW E. WELSH of Indiana.

we must see to it that this cooperation continues and improves if we are to provide the best possible service to our customers."

The largest opportunities lie ahead for the telephone industry, Pearce said. But, he stressed, the parallel with similar industries which in recent decades have been faced with challenges and failed. In each case where competition took business away, it was because of a failure in management, which refused to reorient and reorganize for the challenge.

"We can and will meet the competition," Pearce said.

In his presidential address, L. H. Meyer, association president and president of General Telephone Co. of Indiana, reviewed the past year for the association and then pointed the industry's attention to the challenge ahead.

"Over the years," Meyer said, "the objective goal of the communications industry has been better service at the lowest possible cost to the customer, but in my company, because of the tax take for example, and it is probably about the same in your company, we collect from our customers about $1.45 for a dollar of telephone service."

He emphasized that a telephone company which is constantly confronted with higher taxes, labor and material cost and depreciation, even where it is allowed a pro forma fair rate of return, never in fact earns the stated rate.

"These pressures," Meyer said, "require that we direct a cold and calculating eye at cost — this means every cost we incure, whether for capital expansion or within the expense category. And, in the process of examining costs, we are actually looking for value."

In examining the recent state legislative session in Indiana, Meyer said that "the session has been characterized as a good one, not so much because of the bills which passed but by the fact that many failed to pass." However, he warned that "it is well to consider that many of the bills which failed to pass could well be revived during future sessions."

"We have an excellent business

Pioneers in CONTINUOUS FEED PRESSURE SYSTEMS & MAINTENANCE EQUIPMENT

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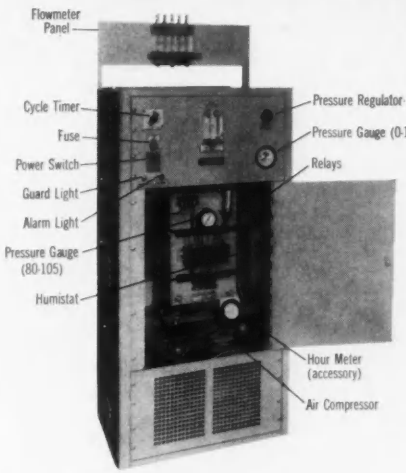
MODEL RC DEHYDRATOR

completely automatic in operation



This is the remarkable dehydrator (desiccant type) that will *definitely reduce maintenance cost* at your cable plants, because it saves both dollars and hours. The Model RC dries insulation faster and more efficiently, eliminates cable moisture, and means better service to your customers. Here are just a few of its features:

- **Hi-Lo pressure switch for alarm**
- **Humistat for alarm above 4% Relative Humidity**
- **Power failure relays and separate fustat**
- **Power supply is 115 volt, AC on the Dehydrator and Air Compressor**
- **By-Pass Valve and alarm for excessive Relative Humidity**
- **Mechanical control valve for stand-by air supply (dry nitrogen) in event of power failure**
- **Additional safety features on air compressor**
- **Operating voltage 115/220 volts, 1 phase, 60 cycle—output 700 standard cubic feet per day maximum—dewpoint —70°F.**

For complete information on the MODEL RC, write for our Bulletin No. RC-1-61

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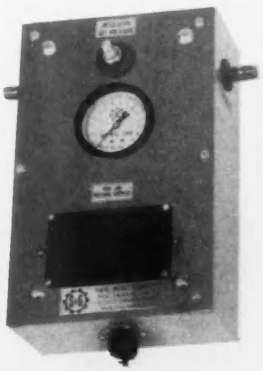

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Used for providing lower pressure air to cable network where needed, this kit is provided with a Hi-Lo Contactor and Alarm Outlet for tying into the alarm circuit. It is supplied in a steel box approximately 3"x7"x11", and can be wall or bracket mounted.

Write for Bulletin No. 8250-1-61 for complete information on the Dual Pressure Kit.

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Officers and directors of the Indiana Telephone Association are (Front Row, left to right): C. D. EHINGER, Decatur; R. V. ACHATZ, Aurora; E. C. MULL, Knightstown, second vice president; G. A. STEELE, Warsaw, first vice president; L. H. MEYER, Fort Wayne, president; CLIFFORD C. PEARCE, Riceville, Iowa, president USITA (guest); W. J. SCHEIDLER, Greensburg. Back row: GEORGE A. SCHUMACHER, Indianapolis, secretary-treasurer; DON VAN FLEIT, Garrett; LaMAR STOOPS, Nappanee; ROY C. ECHOLS, Indianapolis; JOHN A. HARBAUGH, Sullivan; VIRL WATKINS, Princeton; R. R. HIRSCHMAN, Indianapolis; HUGH A. BARNHART, Rochester; WADE MORRIS, Fairmount; CHRIS DOYLE, Seymour, and FRANCIS SIMPSON, Winchester. Not shown are: W. A. McCullour, Fort Wayne; Preston Platt, Valparaiso, and Charles Jessup, Franklin.

climate," Meyer stated, "but we need new and expanded industries in order to provide jobs for our expanding population. Every citizen of the state must keep this in mind and not ask for unnecessary state services or aid which will lead to additional taxes."

Meyers warned that two bills which failed to pass "in the main, provided that if one customer or a group of customers within the area of a given telephone company desired service from an adjoining company, they could, by petitioning the public service commission, have gotten such service because they would have been obligated to order the company owning the adjoining exchange to serve these customers."

For the immediate future, Meyer suggested that "each and every company examine its service not only as to type and grade, but as to calling area. I feel our companies must work out equitable arrangements for the provision of foreign exchange services and step up enlarging calling areas by instituting still more extended area service. The ownerships of the exchanges involved should not be allowed to stand in the way of providing service and calling areas satisfactory to the public so long as the public is willing to pay the cost."

He praised the bills that were passed saying "At long last our companies will now be eligible for some reimbursement for moving facilities in connection with the construction of the national system of interstate and defense highways. Also, we have a law on the books which gives protection against improper use of our facilities and of the facilities without proper payment. This has to do with the improper use of person-to-person and collect calls to relay messages without payment therefore. Moreover, the charging of calls to an unauthorized number, an unauthorized credit card number or to an unassigned number is now unlawful."

Meyer reviewed many of the laboratory model communications innovations which will one day be standard on the market and made a prediction in the realm of "Buck Rogers" fantasy.

"It is quite possible that in the future, communication facilities of this country may be used more for data transmission than for voice transmission," he said. "This is hard to conceive but this fact is now nearly an accepted reality in the laboratories of this country."

In touching on satellite communication he said, "it is believed the system should be owned by interested communication common carriers and all communication common carriers should be permitted to use the facili-

L. H. MEYER (left), president of the Indiana Telephone Association presents Merit Awards to HAROLD J. JAMES (center) of Salem, Ind., and JOSEPH CHAMBERS of Seymour, Ind.

ties whether or not they participate in ownership. Such a system will make possible worldwide television; world-wide data transmission as well as telephony."

In closing Meyer warned that "whether we like it or not, there is still a hostility toward the very word 'profit.' . . . Within the area of inadequate profit, whether imposed by an unaware public or an overly cautious regulatory climate, is the very power that prevents growth. . . . It must be recognized there is a difference between industry and the communications business which must be better understood. You can lay off people in industry when sales are down, but you can't lay off equipment dedicated to public service and call it back into service two weeks hence."

The final speaker before the association was Roy C. Echols, Indianapolis, president of Indiana Bell Telephone Company. Echols discussed three "explosions" which have affected the communications industry — the explosions of population, technological advances, and the competition which has stemmed from those advances. The entire industry will feel them sooner or later, he said.

"By 1975," Echols stated, "there will be 60 million more Americans, two million more in Indiana alone. To meet this explosion we must provide a broad range of telecommunications adapted to the individual needs of business and residential customers. In the past ten years, 80% of the growth has been in and around metropolitan areas. The public wants quicker and easier telephone service and area coverage for larger trading areas. Meeting this need is one of our major responsibilities and objectives."

In the area of technological advances, Echols said that satellite systems will be needed to handle international communications. Overseas messages alone will total 100 million per year by 1980.

In discussing ownership of the satellite system, he said that there was no desire to monopolize space communications — that it was a natural extension of present networks

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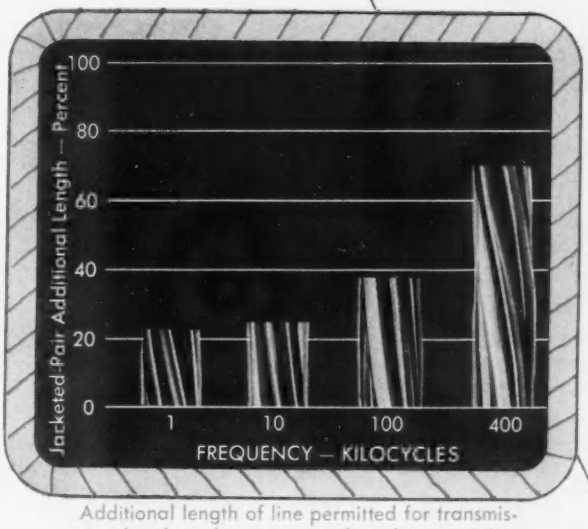

Additional length of line permitted for transmission loss based on wet weather characteristics. Jacketed-Pair vs Standard Construction (PE-15 March 1960)

Jacketed-pair Distribution Wire exhibits substantially lower loss during heavy rain and will, therefore, allow a longer line for an equal transmission loss. At one kilocycle this improvement permits a 22% longer line.

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Other instruments available from Northeast Electronics Corporation include Single Frequency and Multi-Frequency Reference Tone Generators, Loop Around Transmission Test Systems, Fault Locator, Singing Point Test Set, Program Amplifiers, and RF Power Monitors.

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and should be available to all international common carriers.

Referring to the explosion of competition since World War II, Echols felt it was ironic that the telephone industry was faced with private microwave system competition — a medium which the telephone industry had pioneered. Nationwide, he pointed out, there are 43,000 miles of private systems compared to 44,000 miles in the Bell system. In Indiana, Bell and the Independents own 1,000 miles compared to 600 miles in private systems.

"How do we meet this competition?" he asked.

His solution is to meet the competition head on as to price, maintenance by the local telephone company, and freedom from capital investment for the customer by having the telephone company own the facilities and keep the systems working and modernized.

Echols concluded by saying that if private industry doesn't move fast enough, "I believe the federal government would move in and move in ways that telephone companies will not like."

Two highlights of the Indiana convention were the merit awards and announcement of the Telephone Man of the Year by ITA President Meyer.

Harold J. James of Salem, and Joseph Chambers of Seymour, employes of the Indiana Telephone Corp., received merit awards and $50 checks. On April 28, James and Chambers saw smoke coming from a home in Seymour. They called the fire department and then rushed in and carried out Fred Butler, Route 1, Brownstown. He had been sitting (unconscious from the smoke) in a chair and his clothing was afire.

After rescuing Butler, the two men fought the blaze with a garden hose until firemen arrived. Butler recovered and was later released from a hospital.

The Telephone Man of the Year is Raymond V. Achatz, president of the Southern Indiana Telephone Co., Aurora.

Achatz is 75 and was born in Granger, Minn. As a boy, he helped his father and uncle with the opera-

Indiana Association President L. H. MEYER (left) presents "Telephone Man of The Year" award to RAYMOND V. ACHATZ, President of the Southern Indiana Telephone Co., Aurora. Achatz is a past president of the Indiana Association.

tion of a telephone company at Algona, Iowa. After graduating from Purdue in 1908, he worked for five years with the Chicago Telephone Co. From 1913 to 1924, he taught electrical engineering at Purdue.

On January 1, 1925, Achatz acquired the Southern Indiana Telephone Co., which had a plant investment then of approximately $115,000. Today its assets are $1,200,000.

Achatz was a member of the State Engineering Registration Board for 27 years, a Scoutmaster 31 years, and is a past president of the Indiana Telephone Association, and the oldest member in years of service on its board of directors.

One of the feature presentations at the ITA convention was a luncheon talk by Governor Matthew E. Welsh of Indiana, who told members that his newly appointed Public Service Commission was a "different kind of commission" whose members were appointed on a full time basis only.

Lt. Gov. Ristine, Mayor Charles H. Boswell, Merton J. Stanley, chairman of the PSC, and members of the commission were among those who heard Welsh tell the association that this can mean "more rapid action on causes before the commission.

"I expect the commissioners to devote their working time exclusively

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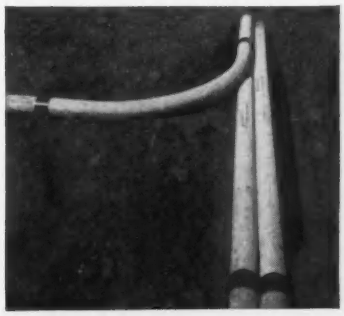

Transite ducts require little, if any, maintenance. The permanently tight joint keeps out water-borne silt and dirt. What's more, it permits pneumatic rodding which can save you 5¢ a foot. No wonder one out of every four feet of telephone duct installed in 1959 was Transite. For further information write Johns-Manville, Box 14 TE-6, New York 16, N. Y. In Canada: Port Credit, Ontario.

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This new development adds to the long list of Calculagraph engineering accomplishments that have solved telephone industry toll-timing problems for more than six decades. Plan now to add this new feature to your Calculagraphs.

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USITA President CLIFFORD C. PEARCE told the Indiana Convention "It is becoming more and more important for each Independent company to be active in its state and national organization . . . We must work in close harmony to cope with today's problems."

to the commission and to participate directly and personally in all major hearings," he said. "The commissioners have been instructed to divest themselves of any outside business interests so that their full time and loyalties could be devoted to the commission. This will mean a better job can be done in obtaining strong adherence to the utility laws of the state."

Welsh praised members of the telephone industry for their public service other than that directly made to their own companies. Telephone companies encourage their people to make a vigorous contribution to government and public service and Welsh said he had availed himself of this contribution on at least two occasions. He termed this contribution a definite asset to the state.

At the business session, Paul Vermillion, director of the division of traffic of the State Highway Commission, explained how the recent ruling to remove telephone booths from the state road right-of-way came about. The U. S. Bureau of Roads had notified the state that highways must be cleared of unauthorized objects and that the state had decided to place highway booths on the basis of safety to motorists and convenience, in that order.

Another major part of the conven-

Indiana Convention Speaker ROY C. ECHOLS president, Indiana Bell Telephone Co., Indianapolis, discussed three "explosions" which have affected the communications industry — population explosion, technological advances, and competition.

tion program was a series of panels: Commercial and Accounting, J. H. Shultz, Rochester Telephone Co., chairman; Plant, C. D. Ehinger, Citizens Telephone Co., Decatur, chairman; and Traffic, Carl Willis, General Telephone Co. of Indiana, chairman.

L. H. Meyer, president of General Telephone Company of Indiana, was re-elected president of the Indiana association. W. A. McCullour, vice president-revenue requirements, General Telephone of Indiana, was elected to the board of dirctors.

Other officers and directors were re-elected.

Officers and directors for the coming year are: L. H. Meyer, Fort Wayne, president; George A. Steele, Warsaw, first vice president; E. C. Mull, Knightstown, second vice president; George A. Schumacher, Indianapolis, secretary-treasurer and general manager.

Directors of the Indiana Association are: Hugh A. Barnhart, Rochester; George A. Steele, Warsaw; E. C. Mull, Knightstown; W. C. McCullour, Fort Wayne; Virl Watkins, Princeton; R. V. Achatz, Aurora; C. D. Ehinger, Decatur; L. H. Meyer, Fort Wayne; W. J. Scheidler, Greensburg; La Mar S. Stoops, Nappanee; Roy C. Echols, Indianapolis; J. A. Harbaugh, Sullivan; R. R. Hirsch-

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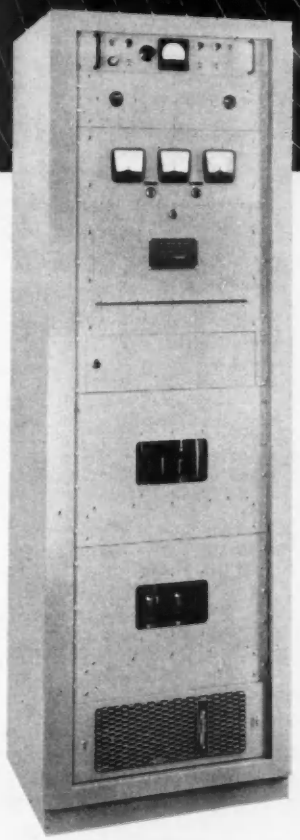

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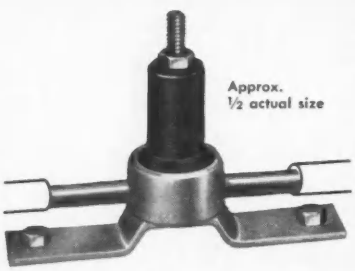
BLEEDS EXCESS AIR FROM TOLL CABLES TO EXCHANGE CABLES



Dahl Relief Valve automatically bleeds excess air from pressurized toll cables into exchange cables . . . maintains adequate pressure in former even if connected exchange cables leak or bleed off.

Developed in collaboration with a leading telephone company to get maximum use of available air, these valves are simple to install, simple to adjust, provide dependable, accurate service. Can be easily set to maintain optimum toll cable pressurization . . . 5½ to 6 psi depending upon ambient temperature . . . allow balance of air to be used in exchange cables. Corrosion-resistant for outdoor use.

REQUEST Catalog T-1a for complete data on this valve and other Dahl pressure system valves for indicating and regulating air usage in continuous flow systems. Write G. W. Dahl Co., Inc., 80 Tupelo Street, Bristol, R. I.

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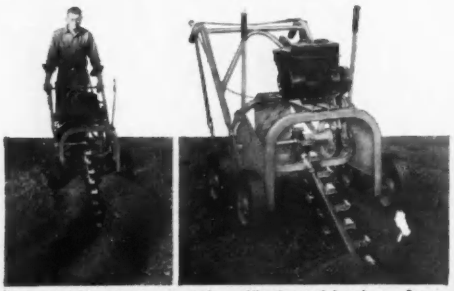

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man, Indianapolis; Frances Simpson, Winchester; and Don Van Fleit, Garrett.

Lincoln T & T Starts Microwave Installation

INSTALLATION of a microwave radio relay system between the Lincoln and Hebron exchanges of The Lincoln (Neb.) Telephone & Telegraph Co. was started May 17 and is expected to be operational about July 15. Circuits from Fairbury, Geneva and Superior, Nebraska, and Salina, Kansas will run by wire to Hebron where connection will be made with radio channels to Lincoln.

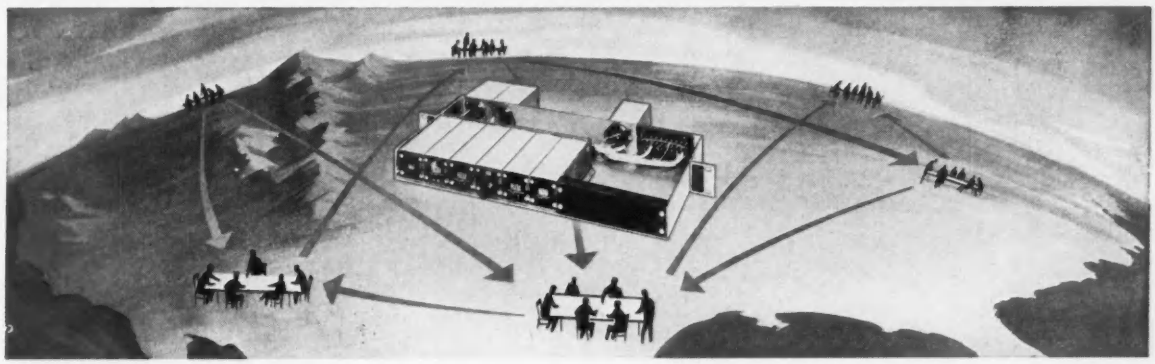
Direct radio channels will be extended to Fairbury in 1964 and to Beatrice in 1966, according to present plans. Radio channels will also connect at Beatrice with wire circuits running to Marysville and Topeka, Kansas. By 1971 it is estimated that 236 radio channels will be in operation. This will be an increase of 147. Direct distance dialing installations and other factors are expected to increase requirements for circuit capacity.

Other long-range plans call for the installation in 1962 of another microwave system between Lincoln and Hastings. Ultimately, this will provide service between these points as well as to Seward, York, Geneva, the Air Force SAGE base near Hastings, and other intermediate and connecting points.

Since 1958, the Lincoln company has had a microwave system operating between David City, Wahoo and Lincoln. In addition, the Lincoln system receives network television for a local TV station from the transcontinental microwave system running through Omaha.

Signals from Lincoln to Hebron will be sent from the 210-foot antenna tower on the telephone building to a 300-foot tower near Clatonia, to a 240-foot tower west of Fairbury and then to a 100-foot tower adjacent to the telephone building at Hebron. These will be steel towers, guyed for support. Repeater buildings, 10 feet by 20 feet, of masonry construction will be built at the Clatonia and Fairbury sites. Gasoline powered gener-

NEW...ALTEC LOUDSPEAKING TELEPHONE SYSTEM FOR INTER-OFFICE TELEPHONE CONFERENCES COAST-TO-COAST



Now, Derive Unlimited Extra Revenues from Existing Lines with This Important Advance in Telephone Service!

Coast-to-Coast inter-office telephone conferences with many talkers at each location are now possible with the new ALTEC 7302 Loudspeaking Telephone System. The 7302 is a fully transistorized system that maintains uniform talking and listening levels regardless of distance with speech transmission of such great fidelity that familiar voices are recognizable instantly. With an effective audio coverage of a large size executive office, the system offers freedom of movement and comfortable hands-free operation to large groups of talkers.

The 7302 operates on *existing telephone lines* in conjunction with type 510 set or equivalent. Associated ALTEC equipment includes the 755C Loudspeaker and one of the following ALTEC Cardioid Microphones: Models M-30, 683A, or 685A. The 7302 mounts in standard 19" relay rack and occupies only 1¾" rack height. Power is supplied to the system from central office or PBX quiet battery supply of 24-26 v DC.

This system—now in use by a nation-wide retailer and a drug chain—provides the answer to their needs for instant consultation among their executives at branch offices throughout the country. With this system, you can now fill the many requests for this type of service from brokerage houses, military command facilities, and any organizations requiring group discussion of problems among specialists in separate locations. For complete information write TE-6.

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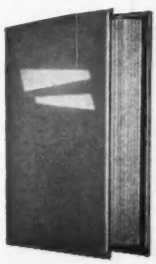
—for more complete, accurate analysis



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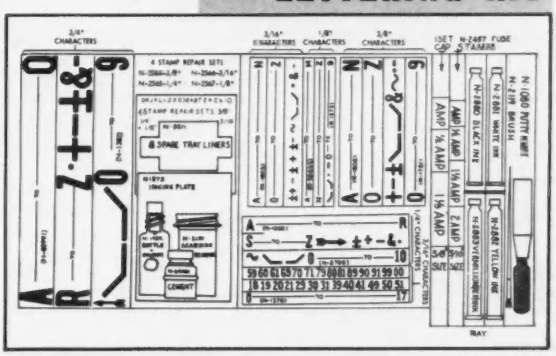

Contains everything for permanent marking of any place where a non-fading, vivid, easy-to-read, clean marking is required. Ideal for marking switchboard panels, junction boxes, subassemblies, chassis, cables, wires, etc. No tapes. Special oil-base heavy stamping inks dry with clear brilliance. Can be used for marking almost any background material.

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Pitch-controlled blade goes down fast and adds to holding power. Can be installed by hand.

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Lets you mechanize screw anchor installation with your power hole-digging equipment. Anchors install in 6 to 8 man minutes.

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Pulls entirely against solid, undisturbed earth. Holds more load than any other type of anchor.

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Install in vertical machine bored holes. Costs much less than "dead-man"-- holds more.

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Wedge into solid rock and wedge against tamped rock.

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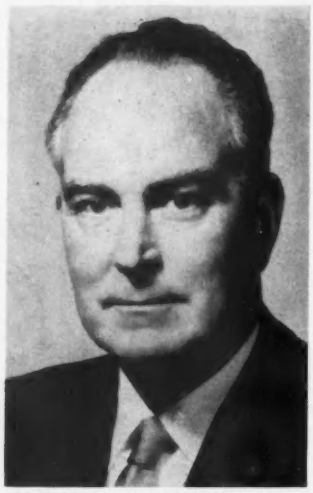


LESLIE H. WARNER, President of General Telephone & Electronics Corp., has been elected a director of Dunlap and Associates, Inc., according to an announcement last month by Dr. Jack W. Dunlap, President of the Stamford, Connecticut, research-consulting firm.

Reliable Electric Co. has announced the appointment of WALTER WITTE to their sales department. Witte will be located in Franklin Park, and will be responsible for providing customers and distributors with general and specific product application information.

ators will be provided to turn on automatically in case of commercial power failure.

Sullivan Appointed Assistant To The REA Administrator

JAMES F. Sullivan has been appointed assistant to the REA Administrator. His selection for this position was announced on April 10, 1961, by REA Administrator Norman M. Clapp. In this position his duties will include participation in the formulation of policies concerning the development and administration of the REA electrification and telephone loan programs.

From 1948 until April 1961, Sullivan was with the Wisconsin Electric Cooperative of Madison, Wisconsin, a statewide organization of REA-financed electric cooperatives. In this position, he worked with public relations and management programs.

Independent Tel. Corp. Announces New Acquisitions

THE INDEPENDENT Telephone Corp. (ITC) has entered into an agreement to acquire controlling stock interest in Western Dial, Inc., of El Dorado Springs, Missouri, and in The Sheldon Telephone Co. of Sheldon, Missouri, William B. Harrison, president of ITC, has announced. The two Missouri Telephone companies serve an aggregate of 3,000 subscribers.

With these two new acquisitions, the Independent Telephone Corp. system will comprise 14 subsidiary companies and 4 affiliates providing telephone service in New York, New Jersey, West Virginia, Florida, Michigan and Missouri.

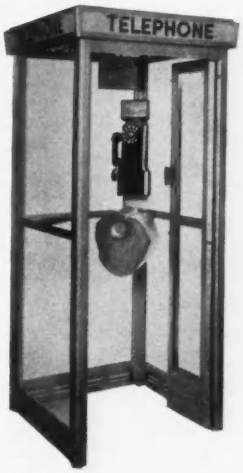
This purchase agreement is subject to the approval of The Missouri Public Service Commission.

Cazenovia Tel. To Merge With Midstate Tel. Co.

ANNOUNCEMENT was made last month by Alfred D. Jones, president of the Midstate Telephone Co., Manlius, N. Y., and R. Philip Hart, president of the Cazenovia (N. Y.) Telephone Corp., that a merger of the two companies is planned, subject to approval of the State Public Service Commission.

The new company will serve over 8,900 telephones in Cazenovia, Manlius, Central Square, Brewerton, Munnsville and West Winfield, N. Y.

PROVED BEST in design



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You can add more circuits to your existing communications lines!

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TYPE PLC CARRIER

With Budelman Type PLC Carrier, you can add up to *four* private-line stations, or other circuits, to almost any existing telephone line — without running additional wire lines — for less than the cost of three miles of single-pair wire line!

Offers four stackable channels — 12 to 96-kc range. User terminal is Underwriters approved when ordered complete with our steel cabinet and dust-cover.

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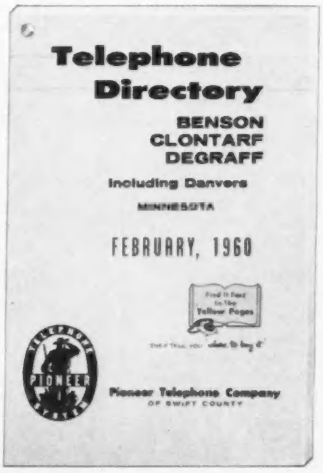

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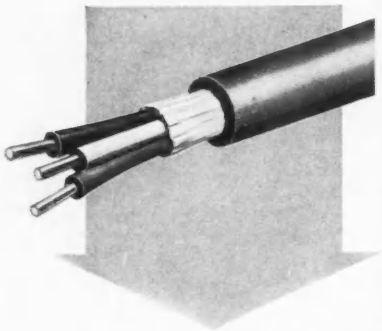
INSIDE-OUTSIDE

STATION WIRE



Superior IO wire was designed to lead a triple life. Use it in exposed outside locations; use it for inside positions; use it as a combined inside-outside wire.

Conductor insulation and outer jacket are of rugged, all-weather polyvinyl chloride, which provides excellent resistance to abrasion, oil, alkalies, and most solvents.

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Northern Electric Opens Telephone Research Center

CANADA'S first telephone research center on May 24 began opening its doors to the scores of scientists and technicians who — working in a sylvan setting near Ottawa — will create and develop ideas of benefit to the nation's communications.

One of the four projected buildings is now being occupied. A second building will be completed on the spacious, 70-acre site in time for the official opening this fall.

The Northern Electric Company's research and development center will serve the Canadian communications industry, including its parent company — The Bell Telephone Co. of Canada. It will double the Northern's present research facilities, fast growing since their formation in 1957.

Research into projects of specific concern to communications in Canada will be the center's basic function, said A. B. Hunt, Northern vice-president who heads the organization. In this, it will complement the work of the Bell Telephone Laboratories in the United States.

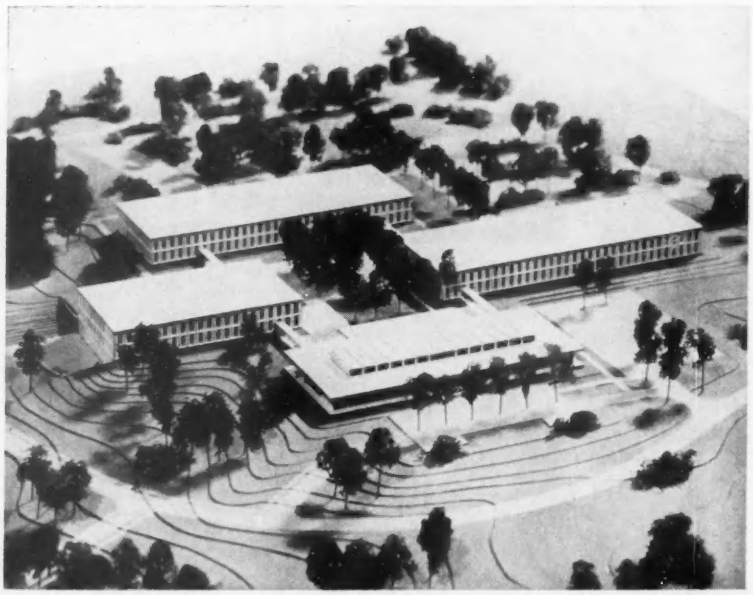
The importance of the Northern research center was stressed by T. W. Eadie, Bell Telephone president, who described it as "the nucleus of a major Canadian research center, one that will share its findings with the world just as the Bell Laboratories do today."

The scientists will work in an atmosphere conducive to the creation and development of ideas. The arrangement of the buildings provides a campus-like setting. The site is just west of Ottawa's city limits, in the two-mile deep "Green Belt" that is part of Ottawa's long-term plan to beautify the capital.

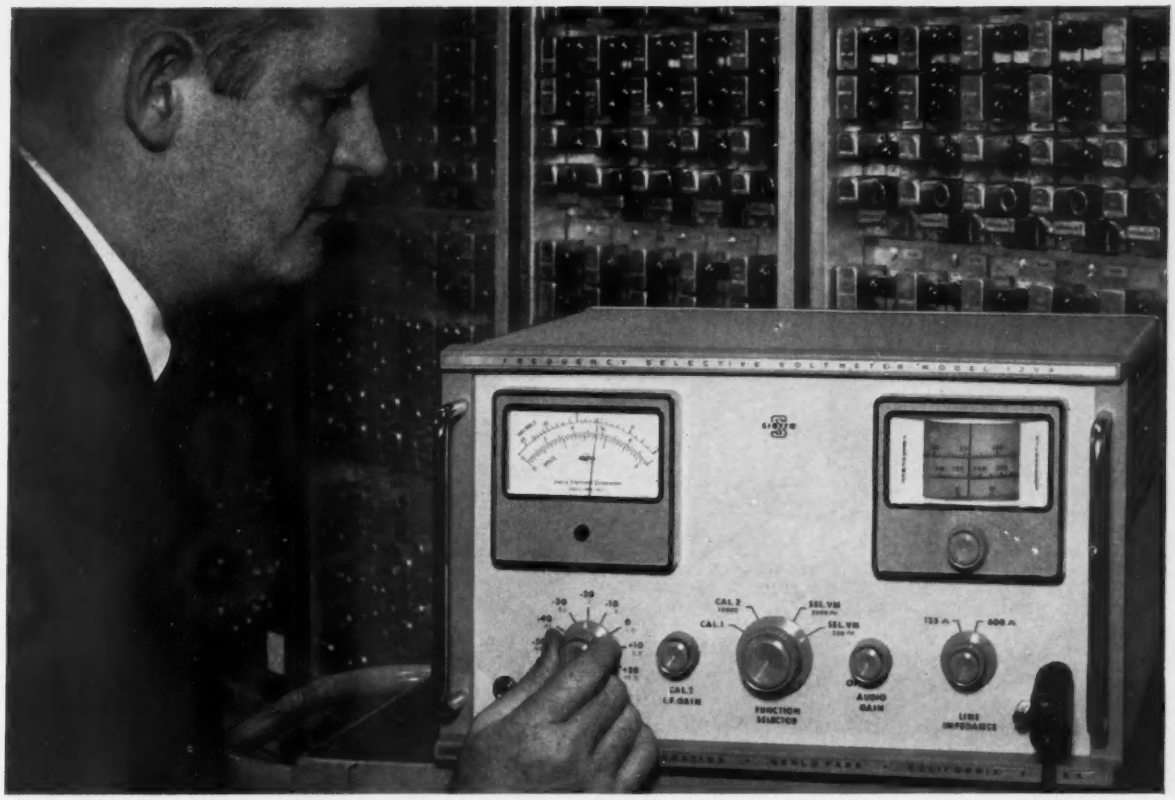
The staff will include many scientists with advanced degrees at the master of doctorate level, plus technicians such as laboratory assistants, tool makers and model shop personnel of high technical skill as well as their associated office workers.

Surroundings that would attract some of Canada's best scientific minds were just one of the factors that had to be considered by the planning committee, headed by Mr. Hunt and A. G. Lester, Bell Telephone's vice president-engineering. Others were as varied as distances from major centers, transportation services, school and social facilities

Please turn to page 82



This architect's model shows the new research center, being built near Ottawa by the Northern Electric Co., where communications research will be carried out for the Canadian telephone industry, including its parent company, The Bell Telephone Co. of Canada. The first building — a two-story laboratory at the left — is now being occupied and the administration building at front will be ready by fall.



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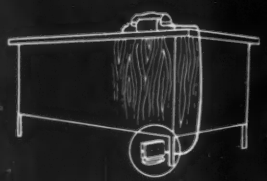

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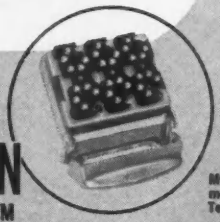

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MODEL 102 shown with standard telephone equipment, accommodates up to 6 No. 44-A Connecting Terminals (3 on each side).

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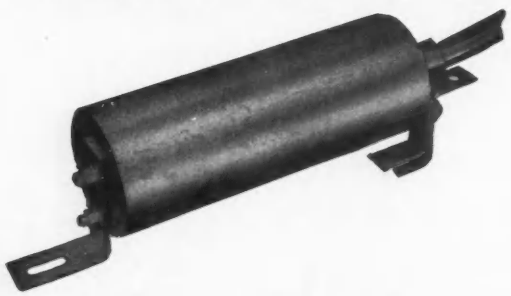
Or, the back of either model can be used to install external ringers, buzzers or auxiliary equipment.

CEECO CEECO TYPE C125 CEECO
GALVANIZED STEEL CASE ASSEMBLIES
FOR AERIAL (POLE MOUNTING).
CONTAINING FOUR TO FOUR HUNDRED SIXTY COILS.



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for employes and proximity to bodies such as the National Research Council and the Defense Research Board.

Robertson Elected VP Of Marketing at U.S.I.

UNITED STATES Instrument Corporation has announced the election of John T. Robertson to the position of Vice President-Marketing.

Before joining U. S. I., Mr. Robertson completed fourteen years with International Telephone & Telegraph

JOHN T. ROBERTSON

in both that company's domestic and international divisions, most recently as marketing manager of ITT — Kellogg in Chicago. Prior to this assignment, Robertson was general manager of ITT Electronics Service Company in Montreal, Canada. He has also been associated with Siemens Brothers, London, England, and Siemens Brothers (Canada) Ltd., both subsidiaries of Associated Electrical Industries.

Walter Arnold Leaves Wyoming Valley Equipt.

WALTER G. ARNOLD, executive vice president of Wyoming Valley Equipment Division for the past 14 years has left the division, but plans to continue his association with the industry as a manufacturers' representative, specializing in construction and public utilities equipment. Arnold's business address is 51 Walnut St., Forty Fort, Kingston, Pa.

Altec Lansing Marks 20th Anniversary

REVIEWING 20 years of growth to a position of leadership in many areas of the electronics industry, Alvis A. Ward, president of Altec Lansing Corp., Anaheim, Calif., recently addressed a social gathering of Altec employes celebrating their company's 20th anniversary.

At the birthday banquet, held at the Disneyland Hotel in Anaheim,

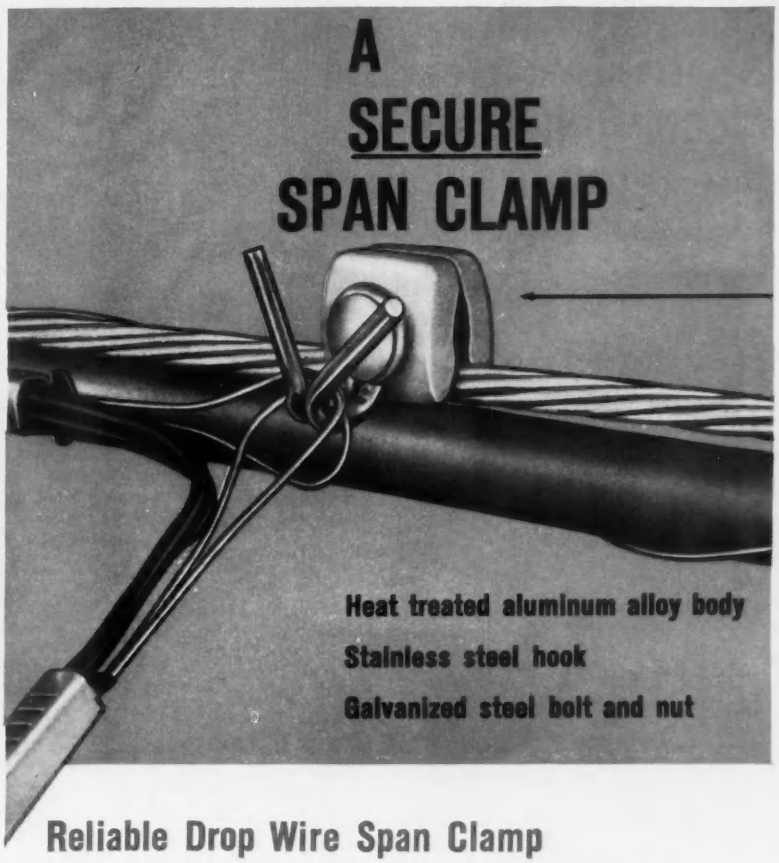
ALVIS A. WARD, president, Altec-Lansing Corp., Anaheim, Calif., trades congratulations with E. F. GRIGSBY, western regional sales manager, at Altec's 20th anniversary banquet. Ward also marked his 20th year with the electronics firm. Looking on in background is W. E. Gregory, manager of production planning and material control.

with employes and their families attending, Ward distributed 10 and 20-year service awards to 86 Altec employes.

Founded in 1941 through the purchase of Lansing Manufacturing Co. by the Altec Service Co., the new firm of Altec Lansing employed 28 people and occupied a small building in Los Angeles. Today the organization with 400 employes operates from a modern 100,000 square feet plant adjacent to Disneyland in Anaheim.

At the time of its inception, Altec Lansing product lines consisted basically of loudspeakers and amplifiers used primarily in theatre sound systems. Today, Altec produces 40 different loudspeakers and amplifiers for selection by the hi fi enthusiast.

To the electronics engineer the Altec name represents a company with wide diversification in the field of communications. Included in Altec's present product lines are pro-



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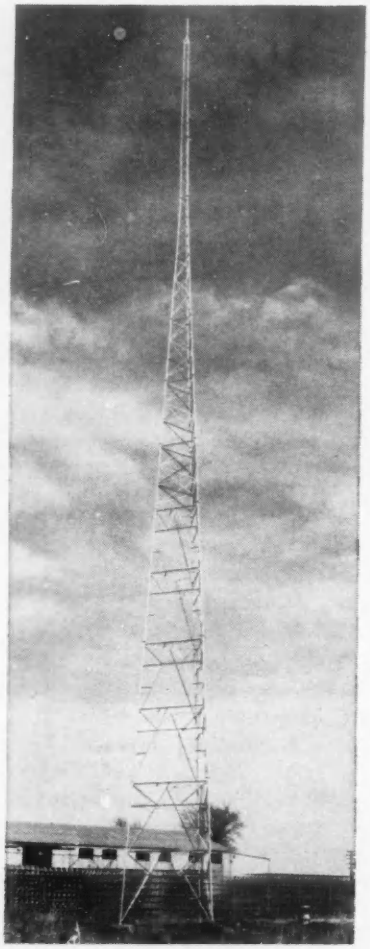

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"Pioneer Manufacturers of Towers of All Kinds"

Cutover of ITT Kellogg K-60 Crossbar equipment by Benkelman (Neb.) Telephone Co. was attended by (l. to r.): WILLARD RAILLE, Benkelman Telco plant superintendent; WALTER EDWARDS, retired night operator; J. H. RAILLE, telephone company manager; J. W. McNUTT, ITT Kellogg regional engineer; A. E. WILLIS, ITTK installer; D. E. WOODWARD, ITTK field sales representative; and J. WEISSE, ITTK installer

fessional microphones, amplifiers, speakers, high intensity sound sources, broadcast consoles, telephone line repeaters, and other allied equipment. The acquisition of Peerless Electrical Products Co. in 1947 added high quality transformers, chokes and power supplies to the long list of Altec products.

As a subsidiary of Ling-Temco Electronics, Inc., the Altec organization operates its extensive manufacturing and research operations from Anaheim, Calif., and lists 750 distributors of its equipment, located around the world.

New Telephone Receiver Creates Design and Production Problems

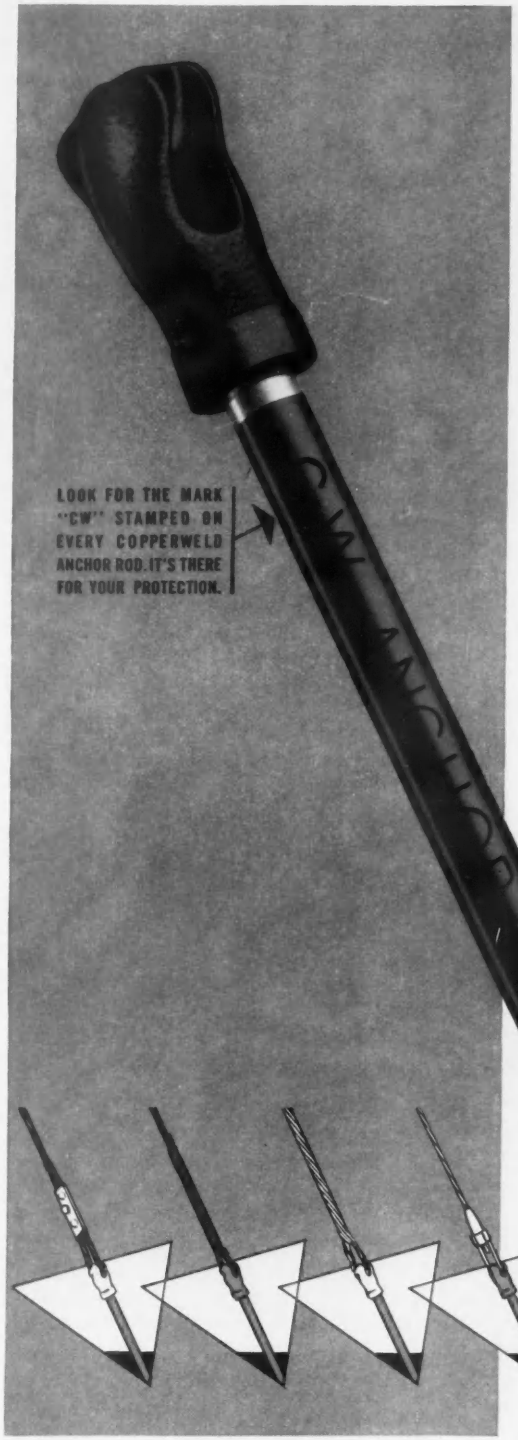
ENGINEERS of Automatic Electric, Northlake, Il., subsidiary of General Telephone & Electronics Corp., have taken a long step toward perfect telephone reception, by designing a new, exceptionally sensitive, receiver that has unusually uniform response to all frequencies in the range necessary for clear, intelligible speech. Its unique combination of design features assures that the Automatic Electric Type 810 receiver will have extraordinary working life; yet it is small in size and light in weight — particularly adapted for handset use. This new receiver will be regular equipment on all standard Automatic Electric telephones.

The new receiver is of the balanced-armature type, the armature moving the diaphragm through a connecting link. The armature is supported on a torsion-bar suspension that is actually part of the armature (movement of the armature is, of course, measured in millionths of an inch!)

A unique feature of the new receiver is the placement of the coil-and-armature assembly. Automatic's engineers discovered that when the armature was mounted parallel to the plane of the diaphragm, there was a tendency for the diaphragm to be distorted by sidewise movements. Under these conditions, the sensitivity of the receiver is impaired — especially at certain frequencies — and naturally the voice the user hears does not sound lifelike.

To prevent such distortion of the diaphragm, Automatic's engineers designed the Type 810 receiver so that its balanced armature is mounted, not parallel, but at a precisely engineered angle, to the plane of the diaphragm. This angle was chosen so that the diaphragm (which is cone-shaped, like the diaphragm in a loudspeaker) responds to all voice frequencies in practically the same degree. It is not at any time pulled off-center; it moves in and out in a straight line, so the motion of the armature is translated into maximum movement of the diaphragm, without distortion.

Around this basic feature, Automa-



You get lasting security with Copperweld Anchor Rods

Because an anchor rod is used in the ground where its entire length cannot be seen, its holding power is often taken for granted. Yet, anchor rods are vulnerable—primarily at or just below the ground line. Here, the rods are subject to rusting and loss of strength due to the action of corrosive soils, moisture and air carried down by surface waters.

Only Copperweld Anchor Rods have a thick covering of copper molten-welded to a strong steel core. This method of manufacture assures lasting protection against corrosion. Since the copper cannot crack, flake or peel, the strong holding power of Copperweld Anchor Rods is always the same . . . protecting your overhead lines year in and year out.

Copperweld Anchor Rods are available in various lengths and diameters. For complete information on these non-rusting anchor rods, write for Engineering Bulletin E. D. 1883.

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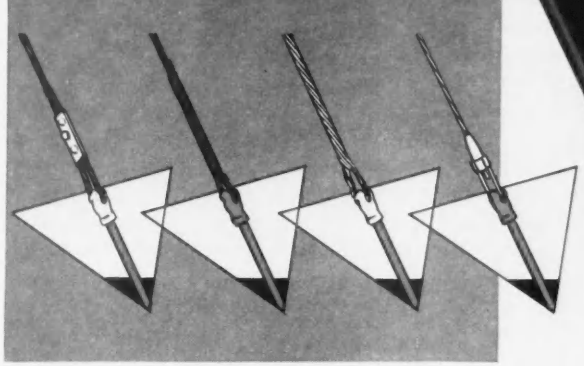

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The threaded ends of each Copperweld Anchor Rod are heavily coated with pure tin to permit the use of ferrous or non-ferrous fittings.

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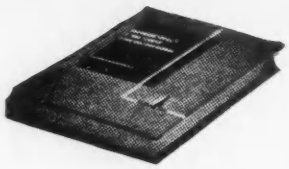

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Just Published! Here's a practical manual of tested product-engineering aids to help you get quicker, easier solutions to everyday work problems. It offers a ready-made file of methods, formulas, tables, and charts for engineering top efficiency into devices, components or complete products. Covers a full range of topics, from accessories and assemblies to clutches, control devices, electrical components, ets. Includes such modern developments as ultrasonics and automated assembly. *Over 1100 drawings show vital design details.*

PRODUCT ENGINEERING DESIGN MANUAL

Edited by Douglas C. Greenwood

Editor, Product Engineering Design Digest

342 pp., 8½ x 11, over 1100 illus., $9.

This book provides a storehouse of material to stimulate you to new design ingenuity, and to help you gain improved mechanisms, better assembly methods, and savings in materials and time. Over 100 topics are systematically arranged and illustrated. You can see how each device works, what it does, and how it meets design requirements. Thus, the book gives you the "feel" of a problem by showing in detail what is good, what has been done, and what is acceptable.

Gives up-to-date facts and data on resistors

Just published! This book thoroughly covers fundamentals and needed data in the use of resistors in electronic design. You get groundwork in the basic aspects of resistance and descriptions of each type of resistor, the materials used in its manufacture, and characteristics associated with each type. Comprehensive tables give most manufacturers' data with specific types of resistors covered in common tables. Thus, a design or components engineer can easily determine the scope of what is available. Full attention is given to such important areas as reliability in resistors, measurements, etc.

RESISTANCE AND RESISTORS

By Charles L. Wellard

Technical Director, Clifton Precision Products Co

264 pp., 6 x 8, 82 illus., $8.50

Among the book's many special features you will find a detailed treatment of precision films as a replacement of wirewound resistors. Included, too, is information on the preparation of precision films by pyrolysis, evaporation, and reduction of oxides. Numerous charts and graphs present information that heretofore has seldom been readily available regarding the power and voltage ratings of resistors, the varieties of material used in their construction, and their many industrial applications.

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View through one of windows in "clean room" shows the spotless assembly area for Type 810 receivers.

tic's engineers have incorporated in the new receiver many other design elements to make most efficient use of the tiny electrical, mechanical and acoustic forces involved.

Acoustic resistance was introduced where needed, through a small stainless-steel screen which limits the amplitude of sounds at certain points in the frequency range. To minimize the noises caused by 60-cycle commercial power, a tiny hole (so small as to be almost invisible) was made in the diaphragm so that the receiver would have almost no response to frequencies below 200 cycles. Each of these details result in a response curve that, from the standpoint of voice transmission, is virtually flat over the entire range of frequencies from 300 to 3500 cycles, and drops off quickly above and below this range.

The Type 810 receiver is a completely enclosed capsule — even the front is covered by a thin, flexible membrane that protects the diaphragm and other working parts of the receiver from moisture. On the back- screw-type terminals are provided, for the permanently tight, low-resistance connections that are desirable in view of the very low currents available for operation of the receiver. A diode mounted on the back plate serves as a click-suppressor; it is normally connected across the receiver leads when the receiver is in service, but the terminal arrangement is such that it is easily and quickly isolated, when it is desired to test either the receiver or the suppressor alone.

The manufacture of Type 810 receiver is a story in itself. The working parts are so small, and tolerances so close, that the assembly is carried on in a "clean room" — which is really three separate rooms:

(1) A locker room where employes don special outer garments.

(2) A cleaning room where parts are ultrasonically cleaned and then passed through an air lock into the assembly room.

(3) An assembly room which is pressurized by a filtered air source. Under the pressurized system, movement of air is from the inside of the "clean room" to the outside. This prevents airborne particles from entering the room.

A number of intricate machines are used in the manufacture of the new receiver. Outside the room a 50-ton Multipress blanks, forms and perforates the diaphragms. These aluminum components are so delicate that the machine operator must use a small

vacuum gun to lift the pieces off the press.

Another machine, developed by Automatic Electric Laboratories, places a precisely measured drop of epoxy resin in the exact center of the receiver diaphragm. Still another press fastens the terminal board assembly to the receiver casing before this component enters the clean room.

After the components are ultrasonically cleaned, they are passed through the air lock to the assembly room where women complete the assembly operation. Special inspection tests are also performed in the clean room to insure the high quality necessary for this extremely sensitive receiver.

Norman McFarlin Joins ITT Kellogg

NORMAN H. McFARLIN has been appointed marketing manager, central office equipment department of ITT Kellogg, a division of International Telephone & Telegraph Corp.

In his new position, McFarlin will

NORMAN H. McFARLIN

be responsible for marketing the company's switching products to the Independent telephone industry.

For the past several years, McFarlin has been in charge of the telephone program for REA (Rural Electrification Administration) as assistant administrator.

Previously, he served as vice president and general manager of the

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Heavy duty, fast, easy cutting loppers designed for utility use.

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Compound lever cutting action, smoothly slices through 1¾" to 2" branches.

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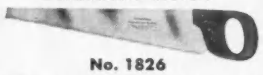
The famous "Tiffany" pattern lopping shears 25" and 30" models. Cut branches up to 1¾".

PRUNING SAWS



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Send for literature and additional information on pruning tools of all types.

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International Teletronics, Inc., Dallas, recently completed a symposium at Spokane, Wash., which covered various types of Panhandle transistorized carrier systems and transmission measuring devices. Various personnel of several Independent telephone companies in the Northwestern area attended. Shown above are front row (l. to r.): R. McINTYRE, Skagit Valley Tel. Co.; RALPH McCLASKEY, Skagit Valley Tel. Co., VERNON PITTSLEY, Evergreen Tel. Co.; second row, (l. to r.): L. H. SCHICK, General Tel. Co.; O. C. WALTER, General Tel. Co.; G. F. McCARTER, Yelm Tel. Co.; HERB MUNDY, International Teletronics, Inc.; SANDY NELSON, West Coast Tel. Co.; ROBERT KING, West Coast Tel. Co.; third row (l. to r.): GEORGE E. OMAN, General Tel. Co.; G. H. ONEY, General Tel. Co.; W. G. LANGFORD, General Tel. Co.; PAUL BALDINGER, General Tel. Co.; last row, J. G. WALKER, Panhandle Electric Co.; K. C. TOMPERS, International Teletronics, Inc.; Not Shown: Paul Wenstrom, Island Empire Tel. Co.

Montezuma (Ia.) Telephone Company at Montezuma, Ia., where he was also engaged in the practice of law with his father, Clyde McFarlin.

A native of Montezuma, Iowa, McFarlin has been associated with the Independent telephone industry for more than 20 years. He is a member of the Independent Telephone Pioneer Association.

John Chapman Joins Lynch Communications

JOHN Chapman has joined Lynch Communication Systems Inc. as an application engineer in the firm's marketing division. In making the announcement, Marketing Manager Harrison Johnston said Chapman's position was created to give quick technical service to customers in rapidly expanding areas of the company's business.

Chapman will report directly to David Shisler, manager of application engineering, and will be responsible for preparation of technical proposals for customer applications. Lynch manufactures communication systems for telephone, telegraph, microwave, data transmission and control applications.

Before joining Lynch, Chapman was a sales engineer with Lenkurt Electric Co., San Carlos, Calif., and prior to that served as staff engineer

JOHN CHAPMAN

for Carrier and Radio Sales for Automatic Electric Sales Corp., Northlake, Ill. He majored in Electrical Engineering & Industrial Administration at Iowa State College, Ames, Iowa.

ROBERT E. McILVANE has been named Manager, Communications Products Division, of the Anaconda Wire & Cable Company. In this capacity McIlvane will have full responsibility for marketing the company's line of communications wire and cable.

Airtronics Names Lindsay National Distributor

THE AIRTRONICS Corporation of Fort Lauderdale, Florida has selected The Lindsay Telephone Supply Company of Northfield, Ohio as a national distributor for the Airtronic line of such items as program equalizers, pulse measuring sets, test hybrids, artificial lines, line build out terminating sets — and a soon-to-be-announced pulse generating set. The announcement was made by Thomas C. Lindsay, president of The Lindsay Telephone Supply Company.

The Airtronic Line will be handled through The Lindsay Telephone Supply company's warehouses located in Northfield, Ohio and Atlanta, Georgia.

Lenkurt Electric Co. Adds Four Engineers

RECENT product development staff additions at Lenkurt Electric Co., Inc., San Carlos, Calif., include four new engineers for the company's microwave radio systems development program and one for the data transmission group.

They are Senior Engineer Ralph L. Brown, data transmission; Staff Engineer T. Stewart Aleshire, microwave project; Staff Consultant in

Crapo HTL-135

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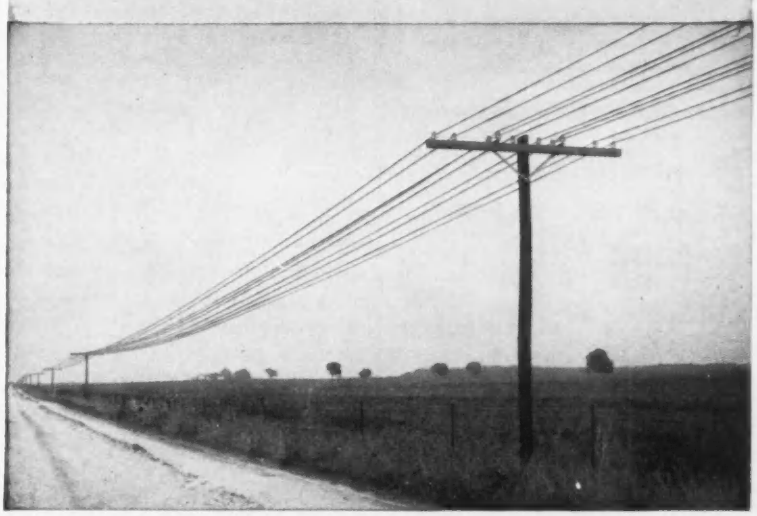
MADE TO WITHSTAND HEAVY STORM LOADS

Time and time again, *Crapo* HTL-135 has demonstrated its ability to stand up under heavy ice and wind loads when other conductors failed. This can be attributed to the fact that *Crapo* HTL-135 combines high strength with high fatigue endurance plus superior elastic qualities which enable it to spring back into place when loads are removed. The result: service interruptions are minimized, re-sagging is seldom necessary, where this rugged telephone wire is used.

The excellent telephonic transmission characteristics of *Crapo* HTL-135 make practical subscriber loops of 14 to 15 miles with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. For dependable, long-span, low cost rural lines, specify *Crapo* HTL-135.



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The **Crapo** HTL-135 in this typical rural line of 300-foot spans was subjected to two heavy ice storms within 14 months. This photo shows the line, without resagging, three months after the second storm.

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RALPH M. SMITH has been advanced to a position as sales representative for the Telecommunication Division of General Dynamics | Electronics. Smith will serve independent operating companies in northern California and northern Nevada. This territory, formerly part of a larger sales area, has grown so rapidly that it warrants the full time services of a representative for Stromberg-Carlson telecommunications products.

MALCOLM H. BARNES has been appointed sales manager of all four divisions of Technology Instrument Corporation of Acton. "Mal" Barnes was formerly a senior field engineer with Yewell Associates, handling component and instrumentation sales for the past four years. Prior to that time he had been associated with the Gabriel Company and Air Force Cambridge Research Center in engineering and research.

Mechanical Engineering Harry J. Jackson, microwave project; Electrical Engineer Thomas DeVos, microwave project; and Assistant Engineer Billy H. Comstock, advanced microwave development.

The five new engineers are among 79 added by Lenkurt since January 1 in substantial buildup of its product development program.

Brown's background includes service with VEGA Electronics Corp., where he was chief electronics engineer and developed new receiver systems, and Ampex Corp., where he was a member of the Videotape Project. He received his bachelor of science degree from the University of California, Berkeley.

Aleshire formerly was with the Ordinance Research and Development Co., North Hollywood, Calif., as chief engineer in development of explosive airborne ordinance devices. He received his master of science in mechanical engineering degree from Akron University, Ohio.

Jackson had been a senior mechanical engineer for the Kellogg Division of International Telephone & Telegraph Co. at its Vandenburg Air Force Base, Calif., field office before coming to Lenkurt. From 1953 to 1960, he was a mechanical engineering instructor at California State Polytechnic College, San Luis Obispo, Calif. He received his master of science in mechanical engineering degree from Oregon State College.

DeVos from 1953 to 1961 was with Canadian Westinghouse Corp. as an engineering assistant. In his native Holland, he attended the Teacher Technical School and was an engineering assistant for Philips Laboratories. He has been awarded patents for two waveguide inventions.

Comstock retired from the U. S. Navy last December as Chief Electronic Technician after 20 years of service. His last assignment was as Acting Material Officer for the Twelfth Naval District reserve program, headquarters Treasure Island, San Francisco Bay. He was responsible for surface electronics equipment — procurement, installation, and operation of training centers.

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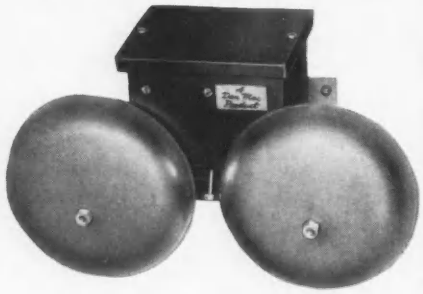

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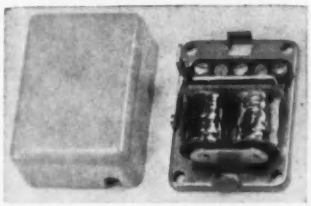

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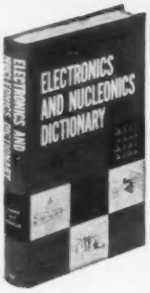

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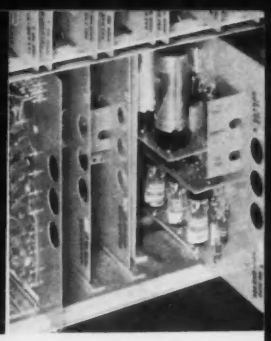


VOLUME 10, NO. 3 Published by the Telecommunication Division of General Dynamics | Electronics JUNE, 1961

Interest in XY® Toll Ticketing continues high

What accounts for the increased choice of XY Toll Ticketing by managers planning a DDD conversion? It may be for any or all of the following considerations:

Direct readout into any standard card-punching accounting machine, saving cost and possible error.

Direct readout, with no intermediate processing, from unattended remote exchanges over a Data Link to the central accounting office.

The most practical approach to PPCS — included initially or added when desired without replacing existing equipment.

The assurance of perpetual recording media through automatically cycled playback from unattended exchanges.

Years ago an important decision was made: to build the Stromberg-Carlson Toll Ticketing system on electronic principles. At that time many said it couldn't be done; others were not sure that electronics should be associated with electromechanical voice switching systems.

Today the telephone industry looks at electronics with new appreciation. Even the most conservative observers, viewing the dramatic Man-in-Space flight of May 5 — in which General Dynamics | Electronics played a vital role — now know that with electronics the threshold of reliability is extended. XY Toll Ticketing, employing many of the same principles that brought success to the May 5th achievement, has set a record for accuracy which amazes those who have had broad experience.

Reliability assurance before delivery is made certain by rigid test procedures, some of these described in later pages of this issue.

After installation, the XY Toll Ticketing system has an exclusive feature that can be set in motion as often as traffic and maintenance personnel choose to use it. Each call is *always* recorded; when desired, both completed *and incompleted* calls can be read out so that a study of subscriber usage or traffic patterns can be made.

Such studies, undertaken at intervals by trained personnel, increase the efficiency of the service — help a company know what revenue should have been earned. The successful businessman today doesn't measure his income only by the cash lying in the till; he has records to show how much *should* be coming in. If it isn't there, he takes steps to remedy the situation, because he *knows* there is a shortage.

Teaching the techniques of income insurance — as well as maintenance — is the purpose of the Stromberg-Carlson Training School for XY Toll Ticketing customer personnel. The most recent such class is shown below, with others to come to Rochester in an accelerating program.

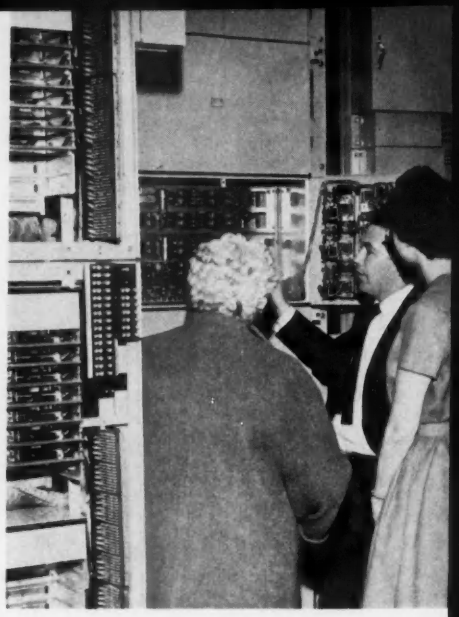
Latest Class at the XY Toll Ticketing School

Back Row: John W. Way, Au Sable Valley Telephone Co., Keeseville, N. Y.; Richard K. Reighard, Iowa- Illinois Telephone Co., New London, Iowa; Leonard W. Christenberry, United Telephone Co. of Indiana (Monticello office); William E. Gunther, Ft. George G. Meade, Maryland; Leo W. Roath, Oregon-Washington Telephone Co., Hood River, Oregon; Robert R. Bankes, Instructor.

Middle Row: Hubert L. Ollig, Installation; Wendell T. Stockton, Western States Telephone Company, Holbrook, Ariz.; Phillip L. Boyer, Installation; James A. Prochazka, Elyria Telephone Co., Elyria, Ohio; Joseph M. Zell, Chardon Telephone Co., Chardon, Ohio; Charles H. Hensley, Western Reserve Telephone Co., Hudson, Ohio.

Front Row: Instructors William Kurtz, Joseph DiVita, Angelo Aschettino, Richard Boyer.

Lester Scott of Lebanon, Oregon, phones congratulations to California-Pacific Utilities' vice president L. E. Cooper (inset) for bringing DDD to Myrtle Creek. With Mr. Scott are (left) Harold Bright, telephone engineer, and G. A. O'Mealy, local manager for C-P.



Myrtle Creek wire chief Milton DeGroodt explains the ticketing equipment.

XY® Toll Ticketing benefits for Independent

Within the short space of weeks, tangible benefits in reduced cost of toll service have been noted by new users of XY Toll Ticketing. The three companies shown on these pages all began Direct Distance Dialing service on the same day: March 18. Two of them were joined that evening in an historic event — the first Independent PPCS-to-PPCS call ever made. Mr. W. Gilman Snyder, president of Western Telephone Company, placed this call from Weaverville, California, to

W. Gilman Snyder (above), president of Western Telephone Company, places historic call from Weaverville, California, to C. B. Miller (below), president of Allied Telephone Company, at the Fordyce, Arkansas, exchange. Both companies installed PPCS in making conversion to DDD. Elwin Bagley is general manager for Western; Hugh Wilbourn manages Allied properties.

Local manager G. A. O'Mealy takes group through XY Dial equipment room.

three more communities

Mr. C. B. Miller, president of Allied Telephone Company, at Fordyce, Arkansas.

At about the same moment California-Pacific Utilities Company inaugurated DDD in a network of towns homing on Myrtle Creek, Oregon. Mayor Ed Oakes of Canyonville (one of these towns) extended the community's appreciation for this service to Mr. E. K. Albert, Cal-Pacific's president. Then Mr. Lester Scott, a director of the Oregon Independent Telephone Association and manager of the Linn County Telephone Company at Lebanon, Oregon, called Mr. L. E. Cooper, vice-president and chief engineer of C-P Utilities. Mr. Scott commented on the smooth transition from operator to automated service; gave special mention to Harold Bright, telephone engineer for the company, who was on hand to assist local manager G. A. O'Mealy and wire chief Milton DeGroodt.

The Myrtle Creek Type 40 LID system will serve additional towns in this California-Pacific operating area. First on the schedule are Azalea and Glendale. Presently equipped with 20 XY Recorders, and using Roseburg as nationwide toll access center, there is built-in flexibility to accommodate growth or addition of extra services as desired. Kenneth Sandner, assisted by Lawrence Sevor, supervised the installation of the Stromberg-Carlson equipment. Sandner also took charge of the Weaverville DDD-PPCS conversion.

Fordyce, Arkansas — because of time zone differential — was first to activate Stromberg-Carlson Toll Ticketing with PPCS. This, like the other two, brought a network of exchanges into the nationwide customer direct dialing plan. General manager Hugh Wilbourn invited Arkansas' Governor Faubus as principal guest for the cutover ceremony. Richard Blume was foreman of the Stromberg-Carlson DDD installation.

E. K. Albert, President
California-Pacific Utilities

Interested visitors at Fordyce: Governor Faubus and T. C. Thompson. The Governor recalled that as a boy he "ran" messages to Arkansas villages that were beyond the last telephone lines.

At Myrtle Creek cutover, interested group gathers around Helen Arrowood, seated at Information turret. Standing directly behind her is Roberta Schmalz, chief operator.

Cutover successfully completed, Joan Kremer and Jacqueline DeGroodt enjoy refreshments. Gentleman is William Clark of Pacific Telephone Northwest.

One of Oklahoma's first settlements goes XY; Gulf States Tel keeps Texas public informed

One of the earliest settlements in Oklahoma is one of the most recent towns to receive XY Dial service. Like so many growing communities in the Kansas City Branch territory, it's keeping right up to date.

Two Independent telephone companies going all out to keep pace with this growth are the Salina-Spavinaw (Okla.) Telephone Company and the Gulf States Telephone Company of Tyler, Texas.

At Salina, which Major Jean Pierre Chouteau established in 1796, Thomas E. Sheard, telephone company owner, based his selection of XY Dial on present and future needs.

Mr. Sheard has devoted 36 years to the telephone industry. His diligent work has produced a 1000% station increase since 1945 in the towns of Salina and Spavinaw.

In East Texas, Rolla L. Johnson, general manager of Gulf States Tel, not only serves subscribers well, but takes pleasure in showing them how it's done. Recent open houses at Kaufman and Athens, Texas, acquainted the public with the way an efficient telephone company is run.

Under Mr. Johnson's leadership, the company has grown well beyond the 25,000-station mark.

Sharing in the excitement of a well-planned open house was Greg Johnson, son of general manager Rolla L. Johnson. Shown with Greg are Charley Fogg, left, sales representative for Stromberg-Carlson products, and Hiram Jones, Gulf States Tel.

Salina, Oklahoma, welcomed Mr. & Mrs. Thomas E. Sheard, and they have rewarded the town with modern efficient XY Dial service. Mr. Sheard's wide experience in telephony led him to choose a dial system that can grow right along with the community.

Time out for business. Local manager B. C. Trambell takes a break from open house festivities at Athens to keep wheels of progress moving. William Rafferty, left, and Ben Fox, Gulf States Tel, beam their approval.

Open houses not only keep the public informed, but offer busy telephone men a chance to get together. Four key men of the Gulf States Telephone organization were on hand to discuss company progress at Kaufman. Left to right, Rolla L. Johnson, general manager; William Hill, local office manager; William Wallace, wire chief; L. A. Wallace, equipment engineer.

This universal test fixture can perform a number of reliability checks on Toll Ticketing components. Here a test is run on an identifier plate. Technician is Lou Ilardo.

For XY Toll Ticketing, factory testing = field reliability

When Direct Distance Dialing is discussed among telephone men, reliability soon becomes the center of interest. Reliability is the criterion of good service; it also is essential in getting the full revenue due from every completed DDD call.

Test engineers for XY Toll Ticketing also center their interest on reliability. It's their job to see that every piece of Stromberg-Carlson Toll Ticketing equipment is thoroughly tested before it leaves the plant. Here are some of the ways they do it.

Magnetic tape recording heads must be tested individually. Each one is made to record marks and spaces on magnetic tape under conditions duplicating those in actual Toll Ticketing offices.

Playback of the tape is checked on an oscilloscope, and each head must reproduce a 90 millivolt pulse to pass the test. This is a higher level than is necessary in normal operation and insures that the recording head will function properly even under adverse conditions in actual use.

A more comprehensive test unit, used to guarantee reliability of several important functions, is the Toll Ticketing Universal Test Fixture. The flexibility of this unit allows it to test identifiers, readout amplifiers, steering chains, steering writein and readout, and tone generator units.

Patchboards coordinate the different tests between fixture and components to be tested. A built-in power supply can provide regulated power within the range 0 to 300 volts. Provision is made for playback of a programmed tape to freely test each piece of equipment for its own particular function.

By activating a bank of switchboard-type keys, the fixture operator can vary the testing conditions. Rigid standards, well beyond those existing in actual exchanges, are set up to insure maximum service when the equipment enters the field.

Magnetic tape recording head is checked for proper pulse. Each head must be tested individually and meet standards higher than required in normal Toll Ticketing office operation. Performing the test is Dick Frohne.

XY Dial still growing

The list of XY Dial offices continues to grow as Independents in all sections of the country are supplying this service to subscribers. Below is a partial list of towns where XY Dial was installed for commercial applications during the month of April.

Arkansas
- Cove
- Gillham
- Hatfield
- Leachville
- Umpire

Iowa
- Kellogg
- Kent
- Libertyville
- Moulton
- Wellman

Kansas
- Coyville
- Fall River
- LaFontaine

Kentucky
- Stinnett
- Wooton

New Jersey
- High Bridge

North Carolina
- Sanford

Oklahoma
- Leedey

Oregon
- Canby

Pennsylvania
- Beech Creek
- Mill Hall

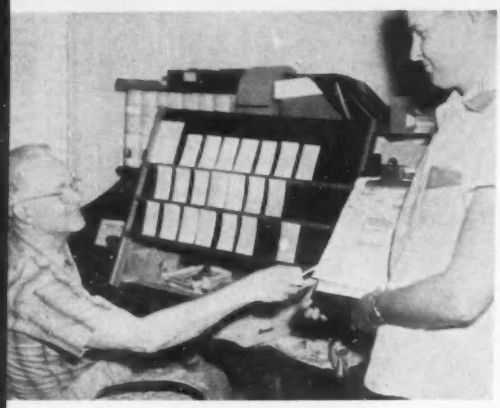
Texas
- Whitney

Virginia
- Montpelier

Washington
- Mineral

Wisconsin
- Palmyra

Mill Hall, Pa., office of United Telephone Company of Pennsylvania joined XY Dial list in April. Cutover of the office was directed by James Free, shown making a call on day of conversion.



Vestor Kersh, left, checks toll tickets with son Hayden.

Mr. Vestor Kersh— he serves many well

"A blessing in disguise."

That's the way Vestor Kersh describes his fall from a telephone pole 16 years ago. The fall broke his back but strengthened his spirit.

"It has given me time to think," Mr. Kersh, now nearly ninety years old, says of the accident. "It has given me time to read the Book."

Mr. Kersh and his sons own and manage the Home Telephone Company in Humble, Texas. Vestor, though bedridden much of the time, is still very definitely a part of the telephone business — has never allowed his disability to interfere with the type of service he believes subscribers deserve. Sons Ed, Hayden and Jay perform the more active jobs in keeping the 1200-station company running smoothly.

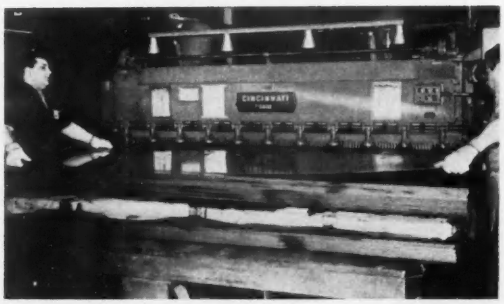
Humble, which is just north of Houston, has benefited from the outward expansion of that city. Growth has sometimes made even optimistic plans inadequate until revised upward — a relatively easy task, since all of Mr. Kersh's subscribers are served by XY Dial.

Mr. Kersh has always found great satisfaction in the telephone business. Now he can devote a larger part of his time to his favorite hobbies — nature and youth. Mr. Kersh's "bird hotels," one with 120 rooms, bring flocks of feathered visitors to his back yard. His dedicated work for the youth of the town won him the title of "Football Dad of the Humble Wildcats" recently. Mr. Kersh calls it an honor he will never forget.

Successful businessman, nature lover, youth worker — all are facets of Vestor Kersh's life. The telephone industry is justly proud to number him in its membership.

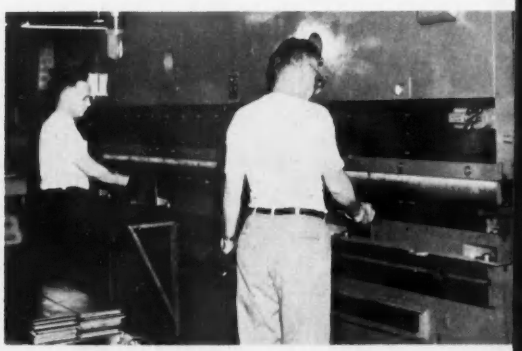
Comparison of old and new switching equipment uprights is made by Walter Ellis, frame department foreman. The sturdy new channels have trimmer, neater edging in addition to lighter weight.

New uprights cut weight, aid building plans



Sheets of hot-rolled steel are fed into shear and sliced into 6-21/32" wide strips in final step before forming. The cutting head of shear must be positioned within .003 of an inch to guarantee a smooth cut.

A lighter-weight upright that meets maximum operating stress (and then some) is now being used with Stromberg-Carlson switching equipment. The new upright weighs 50% less than the previous type and is produced in all standard sizes. Managers planning new dial offices will find that the uprights will keep construction costs in line. This is especially true when the equipment will be housed above the ground floor, and weight becomes even more of a factor.



Forty-two-thousand-pound press brake will provide up to 400 tons of pressure to form uprights. This pressure can be regulated and a three-speed control operated to insure proper forming. Installed in April, the press brake permits close control over this part of Stromberg-Carlson switching equipment.

Transmitter
GEORGE B. FORBES, Editor
J. T. LONG, Associate
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THE BACK OF THE BOOK

By JOHN G. REYNOLDS

Do We Want to 'Catch Up?'

BRYCE N. HARLOW, deputy assistant to former President Eisenhower, reported recently — in a novel way — what this country would have to do "If We Catch Up With the Soviets." He said:

"In order to enjoy the glories of the present Soviet system, we would have to abandon three-fifths of our steel capacity, two-thirds of our petroleum capacity, 95 per cent of electric motor output, destroy two of every three of our hydro-electric plants, and get along on a tenth of our present volume of natural gas.

"We would have to rip up 14 of every 15 miles of our paved highways and two of every three miles of our mainline railroad tracks. We'd sink eight of every nine ocean-going ships, scrap 19 of every 20 cars and trucks, and shrink our civilian fleet to a shadow of its present size.

"We would cut our living standard by three-fourths, destroy 40 million TV sets, nine of every 10 telephones, and seven of every 10 houses; and then we would have to put about 60,000,000 of our people back on the farm."

More Frosting On The Welfare Cake

MAJOR spending programs now proposed in Congress would cost at least $21 billion over a four year period — an average of $5¼ billion beyond existing spending — according to some who favor them. Others put the figure much higher. Senator Goldwater, for instance, estimates the annual four-year cost at $7½ and $10 billion. And these programs, let it be remembered, do not include the multitude of Congressional bills which have no chance of passing. They include only the seriously-regarded ones, with influential backing.

For the most part, the programs have nothing to do with the national defense or related matters. Much of the money would be used to extend the welfare-state idea.

The question is just how all this could be paid for. One way is to increase taxes — but the burden of taxation is now a very serious barrier to economic growth, industrial investment, and the creation of the new jobs the country needs. Another way is through deficit financing and a swelling federal debt, inevitably leading to a new wave of inflation and further degradation of the dollar.

Even those who support the ever-growing power of the central government — at the expense of state and local right, obligations, and independence — should think twice about such programs as these. It is no longer a question of what some or many of us may think desirable — it is a hard-rock question of what we can afford. And, the world situation being what it is, we simply can't afford to add more frosting to the welfare cake. Survival is going to take all the energies and resources we have to spare.

"And Then He Screamed"

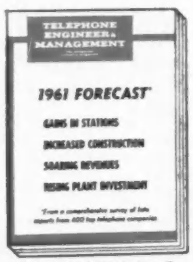
MOST people pay their federal income taxes via the withholding system.

Many workers don't have any accurate idea of just how much is deducted, so some concerns have adopted novel ways of driving the lesson home.

One, for instance, set up two adjoining pay windows. At the first, each employe was given his full check, without deductions. But he had to go at once to the second window and shell out his tax for that pay period.

Another used a different means of achieving the same purpose. An employe whose pay was $100 a week was given the full amount, without any deductions, for three weeks. But at the end of the fourth week the pay envelope held a paltry $23.60. When he screamed in protest the tax story was explained to him. His four-week bill was $76.40, and the company had taken it all in one big bite.

The country needs more of that kind of jolting of the taxpayers.



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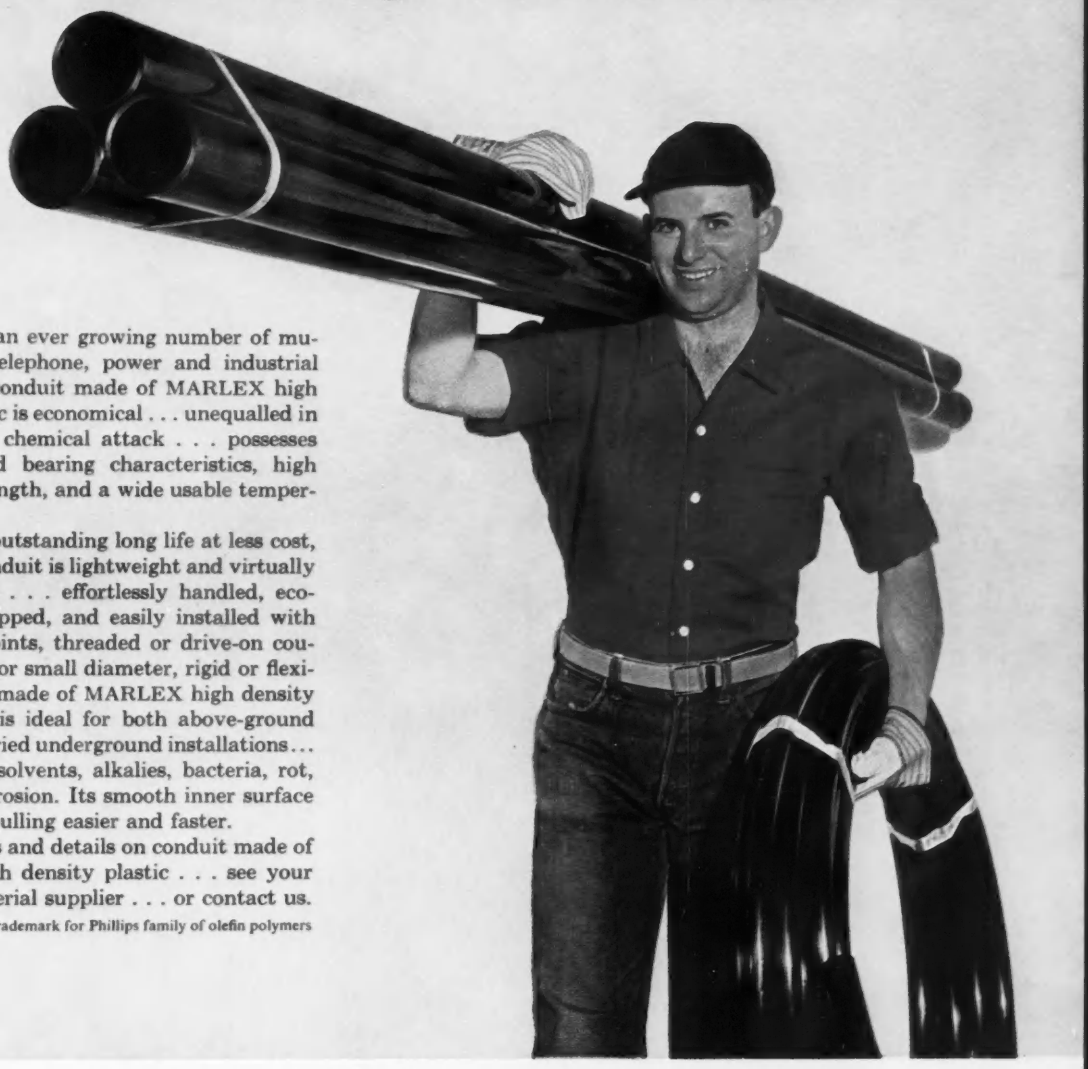

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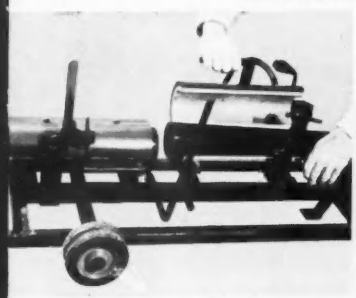
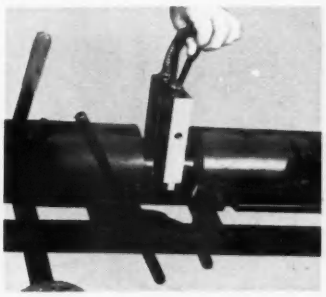
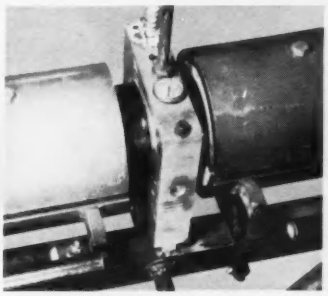


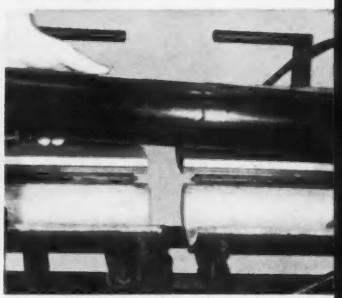
Pipe or conduit is clamped in portable fusion rig.



Thermostatically controlled heating plate is inserted.



Ends to be joined are heated in a matter of seconds.



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Take a man like
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Jack is one of our "Revenue Men" in Long Beach, California.

When he graduated from high school in 1942, Jack was ready and eager to go on to college. But, as happened to many plans in those hectic years, Jack's college career had to be postponed.

Jack joined the U.S. Navy, and served six years' continuous sea duty in the Pacific theater as a radioman.

In 1948, Jack Mixer returned ashore in pursuit of his postponed college education. While earning his degree, he took on a load of spare-time work to gain business experience and pay for half of his college expenses.

After graduation in 1952, Jack joined General Telephone as a sales representative in Long Beach. In 1956, he was promoted to Sales Supervisor of a Long Beach unit.

In January of this year, Jack and his wife presented their eight-year-old son with a baby brother.

Jack Mixer is typical of the community-minded "Revenue Men" who work for General Telephone Directory Company—and for you.

You get more than extra sales when you put one of our "Revenue Men" to work on your directory.

His manners, his methods will be a positive credit to your company. He'll be welcomed by your advertisers.

He'll work together with you to produce a book you can be proud of. A directory with complete Yellow Pages service—showing the public where to go for all kinds of purchases, rentals and services. A directory with maximum accuracy, maximum revenue.

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